1993 SOUTHEASTERN MT MAINTENANCE PROJECT

DSL - AMRB No. 93-M04

FINAL REPORT

Several Counties in Southeastern, Montana

MONTANA
ABANDONED MINE
RECLAMATION BUREAU

December 30th, 1993

SPECTRUM ENGINEERING

Billings, Montana

FINAL REPORT

1993 SOUTHEASTERN MT MAINTENANCE PROJECT

DSL - AMRB No. 93-M04

Sites Located in Southeastern Montana

Bryan
Coal Creek
Crow Rock
Leo/Anderson
Klein Revegetation
McElroy
Dandy West Upper

Lehigh (added site)

December 30th, 1994

Spectrum Engineering
1413 4th Avenue North
Billings, MT 59101

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1993 SOUTHEASTERN MT MAINTENANCE PROJECT

1. INTRODUCTION

1.1 Project Description

The 1993 Southeastern MT Maintenance Project consists of 8 project sites located in southeastern Montana from the Wyoming state line to the south to Jordan to the north. These sites are found in Powder River, Custer, Garfield, Musselshell and Carbon Counties. All of these sites were previously reclaimed under the abandoned mine program and had failed in one way or another. One of the original eight sites was dropped for lack of landowner consent and one new maintenance site was added in Judith Basin County called Lehigh. The need for this project was to protect human health and safety caused by subsidence and dangerous openings.

The work consisted of salvaging and replacing topsoil; closing mine adits and shafts; backfilling subsidence; regrading erosional areas; neutralizing coal slack; and revegetating disturbed areas. The Contractor was also required to secure a MPDES Storm Water Discharge Permit to cover all sites.

1.1.1 Location and Access

Bryan Site.

The Bryan Site is located in the SW¼NE¼ Section 18, T3S, R46E in Powder River County. The latitude is 45° 34.50' and the longitude is 106° 05.70'. The site is found on the USGS 7½ minute quadrangle named Coleman Draw.

The site is situated about half-way between Ashland and Broadus along Highway 212. Access is by travelling ½ mile north via a dirt road off of paved State Highway 212 eight miles east of Ashland.

Coal Creek Site.

The Coal Creek Site is located in the NE¼NW¼ Section 3, T3S, R45E in Powder River County. The latitude is 45° 36.30' and the longitude is 106° 09.66'. The site is found on the USGS 7½ minute quadrangle named Willow Crossing.

The site is situated 8 miles by road northeast of Ashland. Access is by taking the Otter Creek road off U.S. Highway 212 for about 1½ miles. At this point, turn north and continue on a dirt road to the site.

Crow Rock Site.

The Crow Rock Site is located in the SW¼ Section 17, T12N, R45E in Custer County. The latitude is 46° 47.66' and the longitude is 106° 05.72'. The site is found on the USGS 7½ minute quadrangle named Crow Rock SE.

It is situated about 33 miles northwest of Miles City. Access is by proceeding north out of Miles City on Highway 59 from Miles City to Jordan. Follow this paved road 31 miles and then turn right onto a gravel road (3 miles north of Angela and 3 miles south of Rock Springs). Follow the gravel road 6½ miles until you intersect the Crow Rock Road (running north-south). Turn left (north) and proceed 1 mile. Leave the main road and proceed on a dirt road across the field 2/3 of a mile to the northwest until you reach the site.

Sonenberg-Roth.

The Sonenberg-Roth Site is located in the SE¼ Section 15, T18N, R37E in Garfield County. The latitude is 47° 19.0' and the longitude is 106° 59.2'. The site is found on the USGS 7½ quadrangle named Jordan.

It is situated approximately 4 miles south of Jordan. Access is by proceeding southwest from Jordan on Highway 200 for 3.4 miles until reaching mile post 209. Turn right (north) on a dirt road and follow this road for 1.1 miles. The access trail turns west (left) at this point. Follow this road for approximately 1 mile to the site.

Leo/Anderson Site.

The Leo/Anderson Site is located in the NE¼NE¼ Section 26, T19N, R38E in Garfield County. The latitude is 47° 23.0' and the longitude is 106° 50.0'. The site is found on the USGS 7½ minute quadrangle named Jordan NE.

It is situated approximately 4 miles northeast of Jordan. Access is by proceeding east from Jordan on Highway 200 for 5¼ miles. Turn left (north) on Haxby Road and proceed for 5½ miles. Turn left (west) onto a dirt road and follow for 3½ miles to the site.

Klein Revegetation Site.

The Klein Revegetation Site is located in the S½NW¼ and N½SW¼ Section 36, T8N, R25E in Musselshell County. The latitude is 46° 24.2' and the longitude is 108° 32.5'. The site is found on the USGS 7½ minute quadrangle named Roundup.

It is situated approximately 46 miles north of Billings. Access is by proceeding north 46 miles from Billings Highway 87 to the town of Klein and turning right (east) onto a dirt road to the site. The coal slack piles are immediately adjacent to the highway.

McElroy Site.

The McElroy Site is located in the NW¼NW¼ Section 36, T4S, R22E in Carbon County. The latitude is 45° 27.0' and the longitude is 108° 57.5'. The site is found on the USGS 7½ minute quadrangle named Fromberg.

It is situated approximately 3 miles south of Joliet. Access is by proceeding south from Joliet on the Joliet-Fromberg Road for approximately 2 miles and then turning right (southwest) on a dirt road for ½ mile to the site.

Dandy West Upper Site.

The Dandy West Upper Site is located in the NE¼NE¼ Section 8, T9S, R27E in Carbon County. The latitude is 45° 04.3' and the longitude is 108° 26.1'. The site is found on the USGS 7½ minute quadrangle named Red Pryor Mountain.

It is situated approximately 13 miles east of the abandoned town site of Warren (21 miles south of Bridger). The best access is heading 50 miles south via Highway 310 from Laurel to Warren, Montana. At Warren, turn left (east) and proceed east 2 miles on a paved road to the BLM Helt Road (a gravel access road). Then proceed on Helt Road 10 miles. At this point the road forks to the north and to the south. Turn left (north) and travel 1 mile to the site. This road is in poor condition and requires a four wheel drive vehicle to access the site.

The reader is referred to the Site and Vicinity Maps shown on the Site Plan sheets for further description of the access to the sites. No 8 ½ x 11 inch site access maps were prepared for these sites.

Lehigh Site.

The Lehigh Site is located in the SE¼ Section 21, T15N, R12E in Judith Basin County. The latitude is 47° 02.7' and the longitude is 110° 12.3'. The site is found on the USGS 7½ minute quadrangle named Windham.

It is situated approximately 3 miles southwest of Windham. Access is by exiting Highway 87 running from Great Falls to Lewistown and proceeding southwest from Windham for approximately 3 miles on the Sage Creek gravel road. The concrete coal tipple at Lehigh is adjacent to the site with the subsidence hole adjacent to the red barn on the right hand side of the road just beyond the coal tipple.

1.1.2 Land Ownership

The land ownership is shown in the following table from Section I of the bid package.

SITE NAME	LOCATION	LANDOWNER/CONTACT
	POWDER RIVER COUNTY	
Bryan	SW¼NE¼ Section 18, T3S, R46E	Custer National Forest Ashland Ranger District Bill Ott, District Ranger P.O. Box 168 Ashland, MT 59003 406-784-2344
Coal Creek	NE¼NW¼ Section 3, T3S, R45E	Great Northern Properties Limited Partnership 1101 North 27th St., Suite 201 Billings, MT 59101 Attn: Steven K. Shirley Vice-President and Resident Manager 406-248-4885
	CUSTER COUNTY	
Crow Rock	SW¼ Section 17, T12N, R45E	Great Northern Properties Limited Partnership 1101 North 27th St., Suite 201 Billings, MT 59101 Attn: Steven K. Shirley Vice-President and Resident Manager 406-248-4885
	GARFIELD COUNTY	
Sonenberg-Roth (Landowner consent denied-site dropped)	SE¼ Section 15, T18N, R37E	Coleman & Virginia Murnion P.O. Box 13 Jordan, MT 59337 406-557-2251 406-429-7351 (Winnitt)
Leo/Anderson	NE¼NE¼ Section 26, T19N, R38E	Ted & Jack Binion (Landowners) Binion's Horseshoe Casino Las Vegas, NV 89101 702-382-1600

Leo/Anderson (cont.)		James P. Lucas (Contact) Attorney-at-Law P.O. Box 728 Miles City, MT 59301 406-232-4070
	MUSSELSHELL COUNTY	
Klein Revegetation	S½NW¼ and N½SW¼ Section 36, T8N, R25E	Alan Churchill 1219 2nd East Box 987 Roundup, MT 59072 406-323-1180 or 323-2403
	A portion of S½ Section 36, T8N, R25E	Larry Zimmerman P.O. Box 1329 Fort Myers, Florida 33902 813-939-0955
	CARBON COUNTY	
McElroy	NW¼NW¼ Section 36, T4S, R22E	LANDOWNER State of Montana (All of Sec. 36) C/O Dept of State Lands Jeff Hagener, Chief Surface Management Bureau Land Administration Division 1625 11th Avenue Helena, MT 59620 406-444-2074 ACCESS OWNER AND LESSEE Lessee for All of Section 36 and Owner of Access Route in Section 25 Mrs. Mary David P.O. Box 215 Joliet, MT 59041 406-962-3433
Dandy West Upper	NE¼NE¼ Section 8, T9S, R27E	LANDOWNER Bureau of Land Management Ken Hanify Billings Resource Area 810 E. Main Billings, MT 59105 406-657-6262

Dandy West Upper (cont.)

MINERAL CLAIMANT
James J. Stoick
1600 Avenue E
Billings, MT 59102
406-252-1438

1.1.3 History

The history (if any existed) on each of these projects is found with the original bid packages and final reports for these projects. No history is repeated herein.

1.2 Project Objectives/Site Problems

This project was needed to protect health and safety caused by subsidence holes and dangerous openings which have reopened since the original AMRB work at each site was completed. The site problems are described below:

1.2.1 Bryan

The work is to close one adit which has reopened and reseed the prior vegetated area which has failed.

The Contractor will strip and stockpile 1 foot of cover soil from the borrow area. Backfill the 5'x7' adit opening with borrow material. Fill can be obtained from the adjacent dirt bank. Place 1 foot of stockpiled topsoil over the borrow area and the backfilled adit. All disturbed areas will be revegetated. In addition, the coal slack area previously neutralized and seeded will be revegetated.

1.2.2 Coal Creek

The goal is to fix some erosional problems and then revegetate.

The Contractor will regrade the area containing the seven erosional channels (two 60'x ½'x ½' and five 35' x ½' x ½'). No additional fill will be necessary. The regraded area will then be revegetated. Four straw bale dikes (2 bales per regraded channel) will be placed at the down slope end of each of the regraded erosional channels.

1.2.3 Crow Rock

The goal is to fix some erosional problems, excavate and backfill two subsidence holes and then revegetate.

The Contractor will regrade the area containing the four erosional channels (four 40' x ½' x ½'). No additional fill will be necessary. Strip and stockpile 1 foot of cover soil from the borrow area. The two subsidence holes (8" dia. x 17' deep and 6" x 16" x 15'

deep) will be excavated down a minimum of five feet. These holes will then be backfilled with 2 cubic yards of borrow material. The borrow area is adjacent to the subsidence holes. Place 1 foot of stockpiled cover soil over the backfilled subsidence holes. Two straw bale dikes (2 bales per regraded channel) will be placed at the down slope end of each of the regraded erosional channels.

1.2.4 Sonenberg-Roth

The goal is to fix some erosional problems, excavate and backfill one subsidence hole and then revegetate.

The Contractor will regrade the area containing the erosional channel (60' x 1' W x 2' deep). No additional fill will be necessary. Strip and stockpile 1 foot of cover soil from the borrow area. Backfill the subsidence hole (8' x 5' x 7' deep) with 6 cubic yards of borrow material. The borrow area is adjacent to the subsidence hole. Place 1 foot of stockpiled cover soil over the backfilled subsidence hole and the borrow area. Revegetate the regraded area, the borrow area, and the backfilled subsidence hole. A straw bale dike (4 straw bales) will be placed at the down slope end of the regraded erosional channel.

1.2.5 Leo/Anderson

The goal is to backfill one subsidence hole and then revegetate.

The Contractor will strip and stockpile 1 foot of cover soil from the borrow area. Backfill the subsidence hole (10' x 10' x 7' D) with 15 cubic yards of borrow material. The borrow area is adjacent to the subsidence hole. Place 1 foot of stockpiled cover soil over the backfilled subsidence hole and the borrow area. Revegetate the borrow area and the backfilled subsidence hole.

1.2.6 Klein Revegetation

The Contractor will excavate a disposal pit (100' x 120') a depth of 2 feet for coal slack disposal. The topsoil (900 cubic yards) will be stockpiled adjacent to the pit. The slopes on two of the coal slack piles (number 2 and 3) will be reduced to approximately 3H:1V. The slack material (500 CY pile 2 and 200 CY for pile 3) will be buried in the disposal pit. Then neutralize all four coal slack piles, 5 small areas and the disposal pit with 11.2 tons lime (0.80 acres using 14 tons per acre). Respread the topsoil over the disposal pit and all neutralized areas to a depth of 8 inches. Grade to the disposal pit flat. Revegetate the neutralized area and all other disturbed areas (0.8 acres).

1.2.7 McElroy

The goal is to excavate one adit opening and seal that adit with borrow material and then revegetate.

The Contractor will strip and stockpile 1 foot of cover soil from the borrow area. The borrow area is adjacent to the adit. Excavate the adit opening to allow backfilling and stockpile this material (estimated at 1½ cubic yards). Backfill the adit with borrow material and stockpiled material from the excavation of the adit opening. This backfilling will extent to 10 feet into the adit from the adit opening (estimated at 5 cubic yards). Place 1 foot of stockpiled cover soil over the backfilled adit and the borrow area. Revegetate the borrow area and the backfilled adit.

1.2.8 Dandy West Upper

The goal is to excavate two runoff diversion ditches, backfill the shaft, remove and replace the steel grate on the shaft, rebuild the slope adjacent to the shaft, and revegetate.

The Contractor will remove and salvage the failed steel grate covering the shaft. Excavate a runoff diversion ditch on the northern edge and one ditch on the southern edge of the slope to be rebuilt. These ditches will be 2 foot deep and 4 foot wide at the top and approximately 100 feet in combined length. Backfill shaft (12' x 18' x 26' D) with 170 cubic yards of material from Waste Dump #4. Replace the salvaged steel grate over backfilled shaft. Rebuild the slope west of and adjacent to the shaft using 175 cubic yards of material from Waste Dump #4. Broadcast seed and fertilize the rebuilt slope and borrow area. Place 18 straw bales on the toe of the rebuilt slope.

1.2.9 Lehigh

The goal is to backfill one large subsidence hole, install a new shaft cover, and revegetate.

The Contractor will excavate a drainage ditch out the side of the subsidence hole to facilitate water drainage. Then backfill the subsidence hole (32' x 40' x 23' deep) with 1,100 cubic yards of material from the borrow area. Strip and replace the topsoil (289 cubic yards) from the borrow area. Fabricate a new steel shaft cover (37" x 37"), paint with galvanizing paint, and provide 4 padlocks to lock down the cover. Seed, fertilize and mulch the backfilled subsidence hole and trench (0.12 acres). The borrow area will remain unvegetated since it is in a cultivated field.

2. RESPONSIBLE PARTIES

2.1 Contractor

The successful low bidder was Baxter Construction. Their address is shown below:

Baxter Construction
4014 Hardin Road
Billings, Montana 59101
Phone: 406/259-6404
MT Contractor's License: 4884 A

2.2 Reclamation and Engineering Plan

Spectrum Engineering was assigned the responsibility of preparing the reclamation and engineering specifications prior to contractor selection. Plans conforming to the general requirements were formulated in the field to meet specific conditions.

Spectrum's address is shown below:

Spectrum Engineering
1413 4th Avenue North
Billings, Montana 59101
Phone: 406/259-2412

2.3 Quality Control Inspection

Spectrum Engineering performed the quality control inspection. The project engineer was Bill Maehl and the construction inspectors were Bob Seader and John Deeney.

2.4 AMRB Coordination

The AMRB Project Manager was Joel Chavez, Montana Department of State Lands, Abandoned Mine Reclamation Bureau.

3. CHRONOLOGICAL LISTING OF EVENTS

3.1 Pre-Bid Conference

The pre-bid conference was held on August 10th, 1993 at the Klein Revegetation project site at the town of Klein south of Roundup.

3.2 Bid Date

The bid opening date was August 20th, 1993.

3.3 Three Lowest Bids

There were 3 bidders on this project with bids ranging from $20,403.00 to $28,312.00. The engineer's estimate was $26,285.00. The bid tabulations have been included in ATTACHMENT 1. The three bidders are listed below.

Baxter Construction	Hallett Reclamation	Pine Street
Billings, Montana	Livingston, Montana	Glendive, Montana
$ 20,403.00	$ 27,237.00	$ 28,312.00

3.4 Contract Award/Notice of Award/Notice to Proceed

The contract was awarded to the low bidder (Baxter Construction) after receiving all of their bonds, stormwater permit, and other required paper-work. The Agreement was dated September 15th, 1993.

The Notice to Proceed was issued September 7th with a work start date of September 20th, 1993. Baxter Construction performed all of the work themselves. The work started September 20th at the Coal Creek site and was completed on October 26th at the Klein site. The additional Lehigh site was completed on December 14 and 16th, 1993. They used 37 calendar days of the 45 allowed calendar days to complete the work. They work 21 days of actual time to complete all of the sites including Lehigh.

3.5 Construction Start-up

The Contractor started mobilizing his equipment to the Coal Creek site on September 20th, 1993.

3.6 Change Orders

There was one change order written for this project. A copy of this change order is included in this report as ATTACHMENT 2. The change order was for final quantity adjustments, deleting the Sonenberg-Roth site, adding the Lehigh site, and adding the Larry Zimmerman area at the Klein site. The change order added a total of $8,492.13 to the contract price with $6,501 of that being the Lehigh site.

3.7 Work Stoppages

There were two work shut-downs during the project. One occurred when snow prevented completion of the Klein site. The second work shut-down came after Klein was completed until the landowner consent could be secured for the Lehigh site.

3.8 Requests for Payment

There were two payment requests on this project. Pay Request 1 was for the period from job start through 10/19/1993. The amount completed for this pay request was $20,403.00. The second pay request was from 10/20/93 through job completion.

3.9 Substantial Completion

The date of Substantial Completion was October 26th, 1993.

3.10 Final Completion and Approval

The AMRB field inspection date was October 5th, 1993. The Final Completion date is one year from the Substantial Completion date or October 26th, 1994.

3.11 Final Payment

Final payment will be made to the Contractor in January, 1994. Copies of the two payment requests have been included in ATTACHMENT 3.

4. CONSTRUCTION

4.1 Description of Project Plan

The objective of the proposed work is to perform maintenance work on previously reclaimed AMRB coal projects. The work at each site varied from minor to more complex and time-consuming. None of these sites presented any construction difficulties. Several of the sites had further subsided from when the AMRB/engineer field visit occurred and when construction started. Reclamation plans were developed on-site for these extras.

4.2 Major Equipment List

Type	Make/Model	Size/Horsepower	No. on Job
Track loader	John Deere 755	2¼ yd - 152 hp	1
Track loader-backhoe	Case 580D	7/8 yd - 55 cy	1
Scraper	Terex TS-14	14 yd - 288 hp	1
Scraper	Michigan 110-11	11 yd	1
Dump truck	Ford	6 yd	1
Motor grader	Cat 12E		1

4.3 Contractor Employees

The number of contractor employees on the job was 2 counting the Contractor himself.

4.4 Construction Activities

Baxter Construction moved their equipment to the Coal Creek site on September 20th and started work. Three new subsidence holes had opened up (6' x 12' x 6' deep, 8' x 8' x 6' deep and 12' x 12' x 6' deep). These holes were backfilled and seven erosional channels were filled. Straw bale dikes were installed on erosional channels and all disturbance revegetated.

Mobilized to the Bryan site on September 21st, backfilled the adit opening (using 15 cy rather than the 3 cy estimated). Worked up the bare spots and revegetated.

Moved to Crow Rock on 9/21/93 and started work. Filled the erosional channels and installed straw bales. The two very small subsidence holes (8-inch diameter) had joined and formed one very large hole (12' x 20' x 8' deep). This hole was backfilled and all disturbed areas revegetated.

Moved to Leo-Anderson on 9/22/93 and completed this site. Excavated out the subsidence hole and backfilled. All disturbed areas revegetated.

The McElroy site was done on September 23rd. The adit was larger than anticipated when opened up and required additional fill (closer to 20 cy additional above the estimated 5 cy). All disturbed areas were revegetated.

Dandy West Upper was completed on 9/24 and 9/27-28/93. This air shaft connects with the underground workings and had enlarged allowing the grate to collapse into the opening. This shaft required a total of 562.5 cubic yards to fill (170 original estimate). Only half of the grate was able to be salvaged with the other half dropping into the shaft in a vertical position. This did not interfere with backfilling. The slope above the shaft was rebuilt and straw bales were placed along the downhill side. The disturbed areas were seeded and fertilized (no mulch applied).

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The Klein Revegetation site was started on 9/30/93. Work continued here on 10/1, 10/4, 10/5, 10/6, 10/12, 10/14, 10/15, 10/18, 10/25, 10/26 and finished one tiny spot on 10/27. Many additional sites were brought up by the landowner once work had started. A coal slack pile up on the hill had been moved previously and no provisions had been made for drainage control. The water had run down the road causing deep gulling. This upper area was fixed by blading a drainage way to keep water from running down the road and the gulling was repaired. Larry Zimmerman, the landowner on the south side of the road, saw the work being down on Alan Churchill's property and ask that his unvegetated coal slack piles be addressed. Five additional areas were regraded in-place, neutralized, and revegetated.

The Sonenberg-Roth site was deleted from the package due to lack of landowner consent. One additional site was added in Judith Basin County called Lehigh. This subsidence hole adjacent to the highway was addressed on 12/14 and 12/16 after landowner consent was secured. This hole required 1,100 cubic yards of fill. A new steel shaft cover and 4 padlocks were provided (37" x 37") to secure a concrete covered shaft. The cover was painted with galvanized paint to prevent rusting.

All work was done as shown on site plans. A total of 2.92 acres were reclaimed. Two adits and 1 shaft were closed, 1 shaft was secured and a total of 6 subsidence holes were backfilled. This completed the 1993 Southeastern MT Maintenance Project.

4.5 Quantities Used

Almost every bid item was based on a lump sum basis. This made the administration of the contract fairly straight-forward. No disputes were raised by the Contractor about the estimated quantities being wrong.

Item	Amount	Unit Cost	Total Cost
Mobilization	8. sites	$1187.50/site	$9,500.00
Provide Water	0. K gals	10.00/K gal	0.00
Salvage and Replace Cover Soil	306. yards	3.42/yard	1,047.00
Excavate Diversion Ditch (15 CY)	1. each	400.00/each	400.00
Remove and Replace Shaft Grate	1. each	400.00/each	400.00
Close Mine Openings (570.5 CY)	3. each	613.38/each	1,840.13
Rebuild Slope	175. yards	2.86/yard	500.00
Subsidence Backfilling	1250. yards	2.72/yard	3,404.00
Erosion Grading	2. sites	350.00/site	700.00
Excavate and Bury Coal Slack Pile	900. yards	3.00/yard	2,700.00
Reduce Coal Slack Pile Slopes & Bury Material	700. yards	2.14/yard	1,500.00
Neutralize Coal Slack	1.22 acres	1200.00/acre	1,464.00
Fertilize, Seed & Mulch	2.92 acres	1500.00/acre	4,380.00
Straw Bales for Erosion Control	40. bales	5.75/bale	230.00
Ditch & Road Repair	1. each	230.00/each	230.00
Excavate Drainage Ditch	1. each	350.00/each	350.00
Provide Shaft Cover	1. each	250.00/each	250.00
All Tasks			$28,895.13

5. PROJECT COSTS

5.1 Pay Request

Two pay requests were processed for this project as addressed under Section 3.8 above. Copies of these two pay requests have been included in ATTACHMENT 3.

5.2 Cost per Site

Site Name	Disturbed Acres	Cost/Acre	Total Project Cost
Bryan	0.20	$ 8,000.00	$ 1,600.00
Coal Creek	0.20	7,652.50	1,530.50
Crow Rock	0.20	9,855.00	1,971.00
Leo/Anderson	0.16	11,375.00	1,820.00
Klein Revegetation	1.61	5,968.32	9,609.00
McElroy	0.01	114,000.00	1,140.00
Dandy West Upper	0.42	11,246.74	4,723.63
Lehigh	0.12	54,175.00	6,501.00
Total	2.92	$ 9,895.59	$ 28,895.13

5.3 Total Project Cost

The original bid was $20,403.00 and one change order was issued for $8,492.13 bringing the total construction cost to $28,895.13. The total engineering and construction management cost for the project was $37,861.50. An analysis of the engineering costs versus construction costs is presented in ATTACHMENT 4.

6. PROJECT SUMMARY

6.1 Summary of Project

The project went as scheduled with few modifications. The only changes necessary were due to additional subsidence which had occurred from the time the bid package was prepared and the construction started. Additional work was added at the Klein site after the landowner on the south side of road saw the good work being done on the north side. One new site was added at Lehigh which had a large subsidence hole and missing shaft cover.

Baxter Construction completed the project in the allowable contract time using 37 of the 45 days available.

6.2 Site Condition after Completion

All work looked good and followed specifications. Baxter Construction, the Contractor, did a good job on this small project.

6.3 Maintenance or Follow-up

The Coal Creek and Crow Rock sites exhibited active signs of subsidence (new holes opened up from when the engineer was shown the sites and when construction started). These sites and Dandy West Upper should be checked next spring for further subsidence or shaft opening.

6.4 Bid Package (Construction) Drawings

The bid package contained ten Site Plan sheets covering the work at the nine sites. These are located in ATTACHMENT 5 at the back of the final report. These plans represent the reclamation engineering design (the plans from which the contractors bid the work).

6.5 As-Built Drawings

The original Site Plan sheets were modified to reflect as-built final reclamation construction. These are the same plans presented right before the photographs. Since each of these sites was small, there was no need to present a complete set of pre- and post-construction drawings.

7. COMMENTS/SUGGESTIONS

On this project the engineering planning went well. The final work product accomplished all the proposed objectives.

8. PHOTOGRAPHS/SLIDES

8.1 Listing

The description of the photographs taken to document the work performed is found at the back of the final report under ATTACHMENT 5. Each picture is numbered on the front and has a generic label on the back. Following the photo descriptions are the photos themselves. The two bound final reports contain photographs and the unbound report contains only photocopies of the photo sheets (instead of slides) per the AMRB Project Manager.

8.2 Photo Location Maps

The location where the photos were taken and their orientation are shown on the as-built plan sheets located in ATTACHMENT 5 at the back of the report.

8.3 Photos/Slides

The photographic documentation of the project includes only print film per the AMRB Project Manager.

A sequence of photographs documenting the construction activities begins immediately following the photo location maps at the back of the report.

ATTACHMENT 1

BID TABULATIONS

1993 Southeastern MT Coal Maintenance Project
Many Counties, MONTANA

DSL/AMRB 93-MO4
DATE August 20, 1993

BID TABULATIONS				ENGINEER'S ESTIMATE		HALLETT RECLAMATION CO.		PINE STREET INC.		BAXTER CONSTRUCTION	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
1.	1	LS	Mobilization		0.00		0.00		0.00		0.00
	1		Bryan	500.00	500.00	675.00	675.00	1200.00	1,200.00	1000.00	1,000.00
	1		Coal Creek	500.00	500.00	245.00	245.00	750.00	750.00	500.00	500.00
	1		Crow Rock	500.00	500.00	615.00	615.00	1000.00	1,000.00	1000.00	1,000.00
	1		Sonenberg-Roth	500.00	500.00	245.00	245.00	500.00	500.00	1000.00	1,000.00
	1		Leo/Anderson	500.00	500.00	1265.00	1,265.00	1500.00	1,500.00	1000.00	1,000.00
	1		Klein Revegetation	500.00	1,000.00	735.00	735.00	2500.00	2,500.00	1000.00	1,000.00
	1		McElroy	500.00	500.00	1655.00	1,655.00	800.00	800.00	1000.00	1,000.00
	1		Dandy West Upper	500.00	1,000.00	1105.00	1,105.00	2000.00	2,000.00	1200.00	1,200.00
2.	10	KGAL	Provide water for dust suppression at all sites	25.00	250.00	78.50	785.00	30.00	300.00	10.00	100.00
3.	5	LS	Salvage and replace cover soil		0.00		0.00		0.00		0.00
	1	LS	Bryan	200.00	200.00	75.00	75.00	30.00	30.00	50.00	50.00
	1	LS	Crow Rock	200.00	200.00	75.00	75.00	30.00	30.00	25.00	25.00
	1	LS	Sonenberg-Roth	200.00	200.00	75.00	75.00	30.00	30.00	25.00	25.00
	1	LS	Leo/Anderson	200.00	200.00	155.00	155.00	80.00	80.00	80.00	80.00
	1	LS	McElroy Site	200.00	200.00	75.00	75.00	30.00	30.00	25.00	0.00
4.	1	LS	Excavate runoff diversion ditch at Dandy West Upper	500.00	500.00	155.00	155.00	750.00	750.00	400.00	400.00
5.	1	LS	Remove and replace shaft grate at Dandy West	500.00	1,000.00	740.00	740.00	200.00	200.00	400.00	400.00
6.	3	EA	Close mine openings		0.00		0.00		0.00		0.00
	1	EA	Bryan	1500.00	1,500.00	230.00	230.00	50.00	50.00	250.00	250.00
	1	EA	McElroy	1500.00	1,500.00	155.00	155.00	50.00	50.00	100.00	00.00
	1	EA	Dandy West Upper	2000.00	2,000.00	2640.00	2,640.00	12.00	12.00	450.00	450.00
7.	1	LS	Rebuild Slope at Shaft #1 at Dandy West Upper	1000.00	1,000.00	3100.00	3,100.00	1750.00	1,750.00	500.00	500.00
8.	3	LS	Subsidence backfilling		0.00		0.00		0.00		0.00
							14,800.00		13,562.00		10,105.00

1993 Southeastern MT Coal Maintenance Project
Many Counties, MONTANA

DSL/AMRB 93-MO4
DATE August 20, 1993

BID TABULATIONS				ENGINEER'S ESTIMATE		HALLETT RECLAMATION CO.		PINE STREET INC.		BAXTER CONSTRUCTION	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
	1	LS	Crow Rock	500.00	500.00	5.50	75.00	200.00	200.00	150.00	150.00
	1	LS	Sonenberg-Roth	500.00	500.00	155.00	155.00	300.00	300.00	250.00	250.00
	1	LS	Leo/Anderson	500.00	500.00	230.00	230.00	250.00	50.00	500.00	500.00
9.	1	LS	Erosion Grading		0.00		0.00		0.00		0.00
	1	LS	Coal Creek	1000.00	1,000.00	770.00	770.00	250.00	250.00	400.00	400.00
	1	LS	Crow Rock	500.00	500.00	460.00	460.00	200.00	200.00	300.00	960.00
	1	LS	Sonenberg-Roth	500.00	500.00	155.00	155.00	300.00	300.00	150.00	300.00
10.	1	LS	Excavate coal slack disposal pit, stockpile topsoil and spread over disturbed areas at Klein Revegetation site	1800.00	1,800.00	2525.00	2,525.00	4500.00	4,500.00	2700.00	2,700.00
11.	1	LS	Reduce slopes on two coal slack piles and bury in disposal pit at Klein Revegetation Site	1400.00	1,400.00	2930.00	2,930.00	2100.00	2,100.00	1500.00	1,500.00
12.	0.80	Acre	Neutralize coal slack at Klein Revegetation	2000.00	1,600.00	2200.00	1,760.00	2500.00	2,000.00	1200.00	960.00
13.	2.09	Acre	Fertilize, Seed and mulch		0.00		0.00		0.00		0.00
	0.40	Ac	Bryan	1500.00	600.00	1500.00	600.00	2000.00	800.00	1500.00	600.00
	0.20	Ac	Coal Creek	1500.00	300.00	1500.00	300.00	2000.00	400.00	1500.00	300.00
	0.20	Ac	Crow Rock	1500.00	300.00	1500.00	300.00	2000.00	400.00	1500.00	300.00
	0.80	Ac	Klein Revegetation	1500.00	1,200.00	1500.00	1,200.00	2000.00	1,600.00	1500.00	1,200.00
	0.10	Ac	Sonenberg-Roth	1500.00	150.00	1500.00	150.00	2000.00	80.00	1500.00	150.00
	0.16	Acre	Leo/Anderson	1500.00	240.00	1500.00	240.00	2000.00	320.00	1500.00	240.00
	0.01	Acre	McElroy	1500.00	15.00	1500.00	15.00	5000.00	50.00	1500.00	15.00
	0.22	Acre	Dandy West Upper	1500.00	330.00	1500.00	330.00	2000.00	440.00	1500.00	330.00
13.	44	EA	Straw bales for erosion control		0.00		0.00		0.00		0.00
	14	EA	Coal Creek	25.00	350.00	5.50	77.00	10.00	140.00	5.75	80.50
	8	EA	Crow Rock	25.00	200.00	5.50	44.00	10.00	80.00	5.75	46.00
	4	EA	Sonenberg-Roth	25.00	100.00	5.50	22.00	10.00	40.00	5.75	23.00
	18	EA	Dandy West Upper	25.00	450.00	5.50	99.00	10.00	180.00	5.75	103.50
							12,437.00		14,750.00		10,298.00

H:\RECLAM\MS\PROJECT\NEMT.BID

27,237.00 28,312.00 20,403.00

ATTACHMENT 2

CHANGE ORDERS

CHANGE ORDER

ORDER NO. 1

PROJECT TITLE: 1993 Southeastern MT Maintenance Project

MONT A/E or DSL-AMRB: 93-M04

CONTRACT DATE: September 20th, 1993

OWNER: Department of State Lands, Abandoned Mine Reclamation Bureau

CONTRACTOR: Baxter Construction Company

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Delete Sonenberg-Roth Site due to landowner consent withdrawal by Bid Item Number						
	1. Mobilization					(-1000)	(-1000.00)
	3. Salvage and Replace Cover Soil					(-25)	(-25.00)
	8. Subsidence Backfill					(-250)	(-250.00)
	9. Erosion Grading					(-150)	(-150.00)
	13. Fertilize, Seed and Mulch (0.1 acres)					(-150)	(-150.00)
	14. Straw Bales (4 bales)					(-23)	(-23.00)
2.	Provide Water for Dust Suppression - None Required (Bid Item Number 2)					(-100)	(-100.00)
3.	Close Mine Openings (Bid Item # 6) at Dandy West Upper air shaft 392.5 cubic yards extra x $2.65/CY					1040.13	1040.13
4.	Subsidence Backfill (Bid Item #8)						
	Coal Creek-3 new holes (5 hrs backhoe)					250.00	250.00
	Crow Rock-1 new hole (3 hrs backhoe)					150.00	150.00
5.	Neutralize Slack at Klein (Bid Item 12)						
	Extra acreage at Klein of 0.02 acres					24.00	24.00
	Add Larry Zimmerman coal slack-0.40 acres					480.00	480.00
6.	Mobilize Dump Truck to Klein with more lime for Larry Zimmerman sites - 6 hours @ $50/hour					300.00	300.00
7.	Ditch and Road Repair at Klein					230.00	230.00
8.	Revegetate additional 0.81 acres at Klein					1215.00	1215.00
9.	Add Lehigh site subsidence hole & shaft cover					6501.00	6501.00
					TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.		8,492.13
					OVERHEAD & PROFIT @ ____%		INC.
					GRAND TOTAL - THIS CHANGE ORDER		$ 8,492.13

Original Contract Price	$ 20,403.00
Current Contract Price Adjusted by Previous Change Order	$ 20,403.00
Cost this Change Order (+ or -)	+ $ 8,492.13
New Contract Price including this Change Order	$ 28,895.13

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by 0 calendar days.

The date for completion of all work was 12/16/1993.

Description and Justification for Change:

1. Sonenberg Roth site was dropped from the bid package when the landowner withdrew his verbal consent. Bid items were under mobilization ($1,000), salvage and replace coversoil ($25), subsidence backfill ($250), erosion grading ($150), fertilize, seed and mulch (0.1 acres x $1500/ac=$150), and straw bales (4 bales x $5.75/bale=$23).

2. No water was required for dust suppression (10 Kgal x $10/Kgal=$100).

3. Close mine openings. The air shaft at Dandy West Upper had subsided and the hole was wider and deeper once the grate was removed and you could see the extent of the workings. The original bid estimate was 170 cubic yards and a total of 562.5 cubic yards were actually put into the hole. The original bid was $2.65/CY. The extra yardage of 392.5 CY x $2.65/CY also matches the equipment hours times the unit rate per hour so either method gives the same extra cost.

4. Subsidence Backfill. Three new subsidence holes opened up at Coal Creek. These holes were 6'x12'x6'D, 8'x8'x6'D, and 12'x12'x6'D. This took 5 hours of Case backhoe time to fix (5 hrs x $50/hr=$250). The two little gopher sized holes at Crow Rock had opened up to a major subsidence hole of dimensions 12'x20'x8'D. This took an additional 3 hours of Case backhoe time to fix (3 hours x $50/hour=$150).

5. Neutralize coal slack at Klein. An extra 0.02 acres were limed at Klein plus 0.40 acres were added and limed on Larry Zimmerman's property directly south of Alan Churchill's.

6. Larry Zimmerman's coal slack areas were added to the project right before project completion. This required the Contractor to make an extra trip to Warren (remobilize) to get more lime (6 hours dump truck x $50/hour= $300).

7. Ditch and road repair of washout at Klein in previously reclaimed area (2 hours Case 580 backhoe @ $50/hour plus 2 hours of motor grader at $65/hour).

8. Revegetate. Additional areas (1.61 total acres or 0.81 more than bid amount) at Klein were revegetated (more coal slack areas and ditch & road repair on Churchill's and 0.4 acres on Larry Zimmerman's).

9. Add Lehigh site. Large subsidence hole and shaft cover. Took 1100 cy of fill @ $2.14/cy, 289 cy of salvage & replace topsoil @ $3/cy, revegetate 0.12 acres @ $1500/acre, excavate drainage ditch @ $350, provide galvanize painted steel shaft cover with 4 new padlocks @ $250 plus mobilization of scraper and backhoe at $2.20/loaded mile plus bonds and insurance at $2,500 for a total of $6,501.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by $ 8,492.13 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by $ 8,492.13 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

HOINESS LaBAR INSURANCE, INC.

Countersigned by:
Kip W. Vandeventer
Montana Resident Agent

SURETY

Transamerica Premier Insurance Company

BY: Kip W. Vandeventer

By: Kip W. Vandeventer, Attorney-in-fact

Seal

Recommended by: Spectrum Engineering — William C MacRae — 12/23/93
Engineer — Date

Accepted by: Baxter Construction Company — Ed Baxter — 12/28/93
Contractor — Date

Approved by: Dick Anderson — 11/14/94
Owner — Date

ATTACHMENT 3

PAYMENT REQUESTS

PAYMENT REQUEST NO. 1

FROM 9/20/1993 TO 10/20/1993

PROJECT TITLE: 1993 SOUTHEASTERN MT COAL MAINTENANCE PROJECT

LOCATION: SOUTHEASTERN MONTANA MONT A/E or DSL-AMRB: 93-M04

NAME OF CONTRACTOR: BAXTER CONSTRUCTION COMPANY

ADDRESS: 4014 HARDIN ROAD, BILLINGS, MT 59101

SUMMARY OF PROJECT STATUS

Amount of Original Contract		$ 20,403.00
Change Order No. _____	$	
Change Order No. _____	$	
Change Order No. _____	$	
Amount of Approved Change Order(s)		$ 0.00
TOTAL CONTRACT AMOUNT		$ 20,403.00

Pay Request No.	Amount of Request
1	$18,705.00

ok JR
10/25/93

Total Contract Amount Completed to Date	$ 18,705.00
Less Retainage (10 %)	$ 1,870.50
TOTAL AMOUNT EARNED TO DATE	$ 16,834.50
Less Previous Payments	$ 0.00
AMOUNT DUE THIS PAYMENT	$ 16,834.50
Less 1% Tax	$ 168.35
TOTAL DUE CONTRACTOR	$ 16,666.15

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

BAXTER CONSTRUCTION COMPANY
Contractor

By Ed Baxter

Date 10-22-93

RECOMMENDED BY:

SPECTRUM ENGINEERING
Engineer

By William C MacRO

Date 10/20/93

APPROVED BY:

DEPARTMENT OF STATE LANDS, ABANDONED MINE RECLAMATION BUREAU
Owner

By _____

Date _____

RESP. CNTR. 30117 940005-01
OBJ. EXP. 7121
APPROVAL Van R Carlson
DATE 10-25-93

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed to Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1 LS	7700.00	0	0.87	0.87	6700.00	6700.00
2.	Provide Water	10 Kgal	10.00	0	0	0	0.00	0.00
3.	Salvage & Replace Coversoil	1 LS	205.00	0	0.88	0.88	180.00	180.00
4.	Excavate Run-off Diversion Ditch at Dandy West	1 LS	400.00	0	1	1	400.00	400.00
5.	Remove and Replace Grate at Dandy West	1 LS	400.00	0	1	1	400.00	400.00
6.	Close Mine Openings	3 Each	266.67	0	3	3	800.00	800.00
7.	Rebuild Slope at Dandy West	1 LS	500.00	0	1	1	500.00	500.00
8.	Subsidence Backfilling	1 LS	900.00	0	0.72	0.72	650.00	650.00
9.	Erosion Grading	1 LS	850.00	0	0.82	0.82	700.00	700.00
10.	Excavate Coal Slack Pit & Topsoil Handling at Klein	1 LS	2700.00	0	1	1	2700.00	2700.00
11.	Reduce Slopes on Coal Slack Piles at Klein	1 LS	1500.00	0	1	1	1500.00	1500.00
12.	Neutralize Coal Slack at Klein	0.80 Acres	1200.00	0	0.80	0.80	960.00	960.00
13.	Fertilize, Seed and Mulch	2.09 Acres	1500.00	0	1.99	1.99	2985.00	2985.00
14.	Straw Bales	40 Each	5.75	0	40	40	230.00	230.00
	Materials on Site (Attach Schedule)	--	--	$	$	--	$0.00	$0.00
	TOTALS						$18,705.00	$18,705.00

RECEIVED
JAN 10 1994
STATE LANDS

PAYMENT REQUEST NO. 2

FROM 10/20/1993 TO 12/16/1993

PROJECT TITLE: 1993 SOUTHEASTERN MT COAL MAINTENANCE PROJECT

LOCATION: SOUTHEASTERN MONTANA MONT A/E or DSL-AMRB: 93-M04

NAME OF CONTRACTOR: BAXTER CONSTRUCTION COMPANY

ADDRESS: 4014 HARDIN ROAD, BILLINGS, MT 59101

SUMMARY OF PROJECT STATUS

Amount of Original Contract		$ 20,403.00
Change Order No. 1	$ 8,492.13	
Change Order No. _____	$	
Change Order No. _____	$	
Amount of Approved Change Order(s)		$ 8,492.13
TOTAL CONTRACT AMOUNT		$ 28,895.13

Pay Request No.	Amount of Request
1	$18,705.00
2	$10,190.13

Total Contract Amount Completed to Date	$ 28,895.13
Less Retainage (0 %)	$ 0.00
TOTAL AMOUNT EARNED TO DATE	$ 28,895.13
Less Previous Payments	$ 16,834.50
AMOUNT DUE THIS PAYMENT	$ 12,060.63
Less 1% Tax	$ 120.61
TOTAL DUE CONTRACTOR	$ 11,940.02

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

BAXTER CONSTRUCTION COMPANY
Contractor

By Ed Baxter

Date 12/28/93

RECOMMENDED BY:

SPECTRUM ENGINEERING
Engineer

By William C MacDonald

Date 12/23/93

APPROVED BY:

DEPARTMENT OF STATE LANDS, ABANDONED MINE RECLAMATION BUREAU
Owner

By Virl Anderson

Date 1/11/94

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed to Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1 LS	7700.00	0	0.87	0.87	6700.00	6700.00
2.	Provide Water	10 Kgal	10.00	0	0	0	0.00	0.00
3.	Salvage & Replace Coversoil	1 LS	205.00	0	0.88	0.88	180.00	180.00
4.	Excavate Run-off Diversion Ditch at Dandy West	1 LS	400.00	0	1	1	400.00	400.00
5.	Remove and Replace Grate at Dandy West	1 LS	400.00	0	1	1	400.00	400.00
6.	Close Mine Openings	3 Each	266.67	0	3	3	800.00	800.00
7.	Rebuild Slope at Dandy West	1 LS	500.00	0	1	1	500.00	500.00
8.	Subsidence Backfilling	1 LS	900.00	0	0.72	0.72	650.00	650.00
9.	Erosion Grading	1 LS	850.00	0	0.82	0.82	700.00	700.00
10.	Excavate Coal Slack Pit & Topsoil Handling at Klein	1 LS	2700.00	0	1	1	2700.00	2700.00
11.	Reduce Slopes on Coal Slack Piles at Klein	1 LS	1500.00	0	1	1	1500.00	1500.00
12.	Neutralize Coal Slack at Klein	0.80 Acres	1200.00	0	1.22	1.22	1464.00	1464.00
13.	Fertilize, Seed and Mulch	2.09 Acres	1500.00	0	2.08	2.08	4200.00	4200.00
14.	Straw Bales	40 Each	5.75	0	40	40	230.00	230.00
	CHANGE ORDER 1							
	Dandy West Upper Extra CY	392.5 CY	2.65	0	392.5	392.5	1040.13	1040.13
	Extra Subsidence filling with backhoe	8 Hours	50.00	0	8	8	400.00	400.00
	Extra Mobilization	6 Hours	50.00	0	6	6	300.00	300.00
	Ditch/Road Repair (backhoe & grader)	2 Hours	115.00	0	2	2	230.00	230.00
	Lehigh Subsidence	1 LS	6501.00	0	1	1	6501.00	6501.00
	Materials on Site (Attach Schedule)	--	--	$	$	--	$0.00	$0.00
	TOTALS						$28,895.13	$28,895.13

ATTACHMENT 4

ANALYSIS OF CONSULTANT COSTS INCURRED

ANALYSIS OF CONSULTANT COSTS INCURRED
FOR THE MONTANA DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU

AMRB PROJECT NUMBER: DSL-AMRB 93-M04
1993 SOUTHEASTERN MT MAINTENANCE PROJECT

DATE OF PREPARATION: December 30th, 1993

ENGINEERING SERVICE	AMOUNT
DESIGN ENGINEERING:	$22,748.38
CONSTRUCTION ENGINEERING AND PROJECT ADMINISTRATION COST:	$15,113.12
TOTAL PROJECT ENGINEERING COST:	$37,861.50
CONSTRUCTION COST:	$28,895.13

PERCENTAGE ENGINEERING FEES TO CONSTRUCTION COST:

DESIGN ENGINEERING/CONSTRUCTION COST	78.73%
CONSTRUCTION ENGINEERING/CONSTRUCTION COST	52.30%
TOTAL ENGINEERING COST/CONSTRUCTION COST	131.03%

REMARKS: Services provided included landowner contact and consent, surveying, basic engineering and reclamation design, bid document preparation, pre-bid and pre-construction meetings, construction staking, contract administration, quantity accounting, full time construction/reclamation inspection and final report preparation and project close-out.

ATTACHMENT 5

AS-BUILT DRAWINGS

AND

PHOTO LOCATIONS

ATTACHMENT 5

AS-BUILT DRAWINGS

AND

PHOTO LOCATIONS

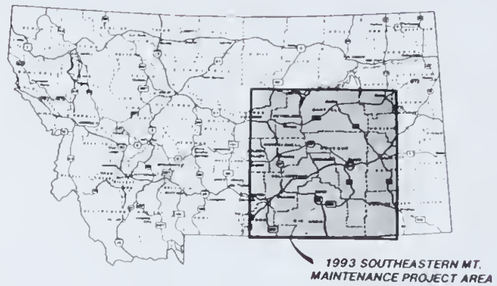
1993 SOUTHEASTERN MT. MAINTENANCE PROJECT

LOCATED IN
GARFIELD, MUSSELSHELL, CARBON, POWDER RIVER & CUSTER COUNTIES, MONTANA

DSL/AMRB 93-M04

PREPARED FOR:

MONTANA DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU



STATE LOCATION MAP

LANDOWNER/CONTACT LIST

SITE NAME/LOCATION	LANDOWNER/CONTACT
POWDER RIVER COUNTY	
Bryan Site SW¼NE¼ Sec. 18, T3S, R46E	Custer National Forest Ashland Ranger District Bill Ott, District Ranger P.O. Box 168 Ashland, MT 59003 406-784-2344
Coal Creek Site NE¼NW¼ Sec. 3, T3S, R45E	Great Northern Properties Attn: Steven Shirley 1101 North 27th Street - Suite 201 Billings, MT 59101 406-248-4885
CUSTER COUNTY	
Crow Rock Site SW¼ Sec. 17, T12N, R45E	Great Northern Properties Attn: Steven Shirley 1101 North 27th Street - Suite 201 Billings, MT 59101 406-248-4885
MUSSELSHELL COUNTY	
Klein Revegetation NW¼SW¼ Sec. 36, T8N, R25E	Alan Churchill 1219 2nd East Box 987 Roundup, MT 59072 406-323-1180 or 323-2403
GARFIELD COUNTY	
Sonenberg-Roth Sec. 15, T18N, R37E	Coleman & Virginia Lou Murnion P.O. Box 13 Jordan, MT 59337 406-557-2251
Leo/Anderson NE¼NE¼ Sec. 26 T19N, R38E	Ted & Jack Binion (Landowners) Binion's Horseshoe Casino Las Vegas, NV 89101 702-382-1600 James P. Lucas (Contact) Attorney-at-Law P.O. Box 728 Miles City, MT 59301 406-232-4070 Greg Severe (Ranch Manager) Binion Ranch, Haxby Route Jordan, MT 59337 406-557-2529

SITE NAME/LOCATION	LANDOWNER/CONTACT
CARBON COUNTY	
McElroy NW¼NW¼Sec. 36, T4S, R22E	LANDOWNER State of Montana (All of Sec. 36) c/o Dept. of State Lands Jeff Hagener, Chief Surface Management Bureau Land Administration Division 1625 11th Avenue Helena, MT 59620 406-444-2074 ACCESS OWNER AND LESSEE Lessee for All of Section 36 and Owner of Access Route in Section 25 Mrs. Mary David P.O. Box 215 Joliet, Montana 59041 406-962-3433
Dandy West Upper NE¼NE¼ Sec. 8, T9S, R27E	LANDOWNER Bureau of Land Management Ken Hanify Billings Resource Area 810 E. Main Billings, MT 59105 406-657-6262 MINERAL CLAIMANT James J. Stoick 1600 Avenue E Billings, MT 59102 406-252-1438
JUDITH BASIN COUNTY	
Leihigh Sec. 21, T15N, R12E	LANDOWNER Gayle Evans Box 55 McCall Creek, MS 39647 601-835-0684

STORM WATER CONTROL BEST MANAGEMENT PRACTICES (BMP'S)

SITE NAME	LEGAL	DISTURBED ACRES	TIME LAPSE[1]	SURFACE WATER LOCATION[2]	TEMPORARY SEDIMENTATION & EROSION CONTROL	PERMANENT STABILIZATION	AS-BUILT ACRES
BRYAN	T3S, R46E, SEC. 18 NE¼	0.40	2	adjacent	MULCH	PERMANENT SEEDING	0.20
COAL CREEK	T3S, R45E, SEC. 3 NW¼	0.20	1	1	MULCH STRAW BALES	PERMANENT SEEDING	0.20
CROW ROCK	T12N, R45E, SEC. 17 SW¼	0.20	2	0.2	MULCH STRAW BALES	PERMANENT SEEDING	0.20
KLEIN REVEGETATION	T8N, R25E, SEC. 36 SW¼	0.80	5	0.1	MULCH	PERMANENT SEEDING	1.61
SONENBERG-ROTH	T18N, R37E, SEC. 15 SE¼	0.10	2	0.08	MULCH STRAW BALES	PERMANENT SEEDING	DROPPED
LEO/ANDERSON	T19N, R38E, SEC. 26 NE¼	0.16	1	0.2	MULCH	PERMANENT SEEDING	0.16
McELROY	T4S, R22E, SEC. 36 NW¼	0.01	1	0.3	MULCH	PERMANENT SEEDING	0.01
DANDY WEST UPPER	T9S, R27E, SEC. 8 NE¼	0.22	5	1.5	STRAW BALES	PERMANENT SEEDING	0.42
LEIHIGH TOTAL ALL SITES	**T15N, R12E, SEC 21**	2.09[3]					0.12

The purpose of this project is to reclaim abandoned coal mines and a uranium mine. All of the sites addressed herein were previously reclaimed and require some additional maintenance work. The construction activity will include salvaging and replacing cover soil; providing water for dust control; excavating runoff diversion ditches; removing and replacing a shaft grate; rebuilding a slope; closing mine adits and shafts; backfilling subsidence; regrading erosional areas; and neutralizing coal slack. Temporary sedimentation and erosion control includes mulching and straw bales. Permanent stabilization includes permanent seeding and fertilizing all disturbed areas.

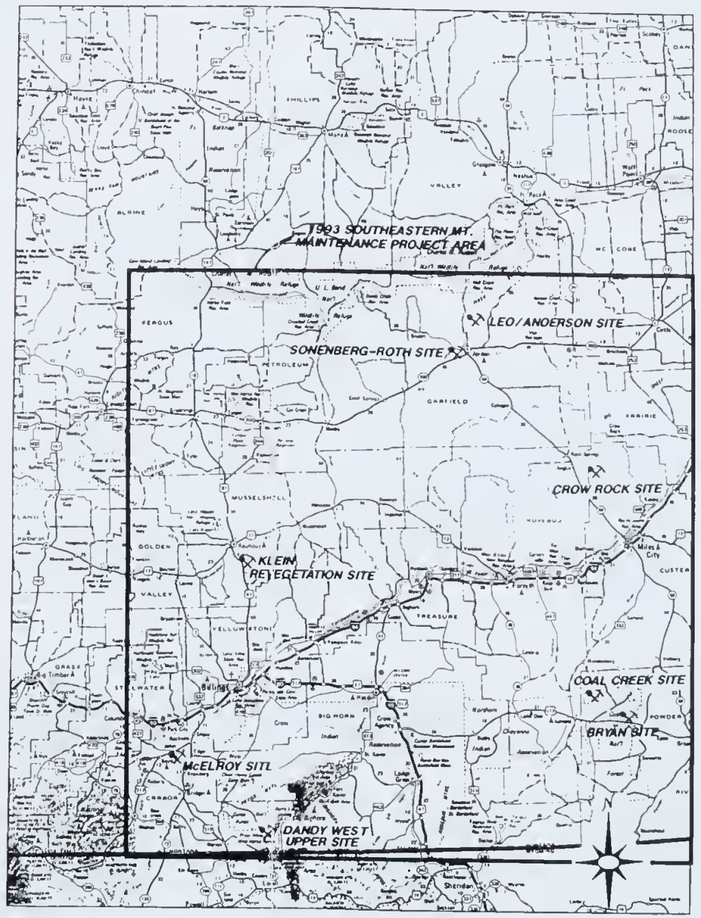
The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074. The Project Manager is Joel Chavez.

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the Contractor as outlined in MPDES Stormwater Discharge Permit and Erosion Control Plan. Good housekeeping chores will include as a minimum:

1. To prevent tracking of sediment off-site, prior to leaving the site, all vehicles shall be washed down on-site as determined by the Engineer at such a location as to contain all washed sediment on site.
2. Fuel, oil, grease and other such materials shall be stored in one location at each site in such a manner as to prevent spillage and prevent contamination of the surrounding soil. All materials shall be stored in a bermed plastic lined storage area with a capacity of 110 percent of the largest container. Absorbent material shall be available on-site for clean up of any spills; and,
3. Lime and fertilizer shall be stored on pallets off the ground or on plastic ground covers and covered with plastic or in other such manner as to prevent spillage and washing from rain water or wind into surrounding soil or off-site.

FOOTNOTES

1. Estimated time period in days from the start of on-site reclamation construction until the site is permanently fertilized and seeded (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant). Temporary stabilization will include mulch and straw bales as outlined above.
2. The distance in miles to the nearest source of potential surface water either flowing or ponded including lakes, rivers, and streams (perennial, intermittent or current dry drainages).
3. 100% of all disturbed areas will be revegetated prior to leaving the site.



AREA MAP

SCALE IN MILES

MAP SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1
BRYAN	2
COAL CREEK	3
CROW ROCK	4
SONENBERG-ROTH	5
LEO/ANDERSON	6
KLEIN REVEGETATION	7
McELROY	8
DANDY WEST UPPER	9
LEIHIGH	**10**

ENGINEER'S CERTIFICATE

THE MAPS AND PLANS WHICH FOLLOW WERE ORIGINALLY PREPARED UNDER THE DIRECTION OF VARIOUS ENGINEERS AND FIRMS IN ORDER TO COMPLETE SITE RECLAMATION WORK OVER THE LAST 10 YEARS. THESE PLANS WERE NOT ALTERED. THE 1993 SOUTHEASTERN MT MAINTENANCE PROJECT USES THE ORIGINAL PLANS WITH THE MAINTENANCE WORK IDENTIFIED IN A DIFFERENT TYPOGRAPHIC STYLE. ONLY THE WORK IDENTIFIED AS MAINTENANCE ON THESE SITE PLANS AND IN THE BID PACKAGE IS TO BE COMPLETED.

I HEREBY CERTIFY THAT THE MAINTENANCE WORK SHOWN ON THESE MAPS AND PLANS WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION. I CANNOT ACCOUNT FOR THE ACCURACY OF THE ORIGINAL SITE PLANS AND THE WORK PERFORMED. LIKEWISE THE ENGINEER WHO STAMPED THE ORIGINAL PLANS ASSUMES NO RESPONSIBILITY FOR THE MAINTENANCE WORK ADDITIONS.

William C. Maehl
William C. Maehl
Montana P.E. No. 5274 PE

ADDITIONAL INFORMATION PERTAINING TO THESE SITES MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

ARCHAEOLOGICAL NOTICE

ANY KNOWN ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKED BY THE OWNER AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE DISTURBED WITHOUT WRITTEN PERMISSION FROM THE OWNER.

HAZARD NOTICE

MANY POTENTIAL HAZARDS EXIST AT THESE SITES. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN.

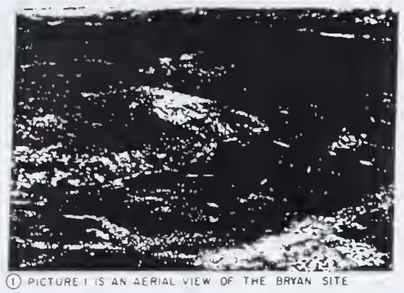
THE CONTRACTOR, SUBCONTRACTORS, AND THEIR EMPLOYEES WILL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS IN THE PERFORMANCE OF THE REQUIRED WORK. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITES SHALL BE FULLY RESPONSIBLE FOR APPRISING THEMSELVES OF ANY HAZARDOUS CONDITIONS WHICH MAY EXIST AND SHALL TAKE WHATEVER STEPS ARE NECESSARY TO INSURE THEIR SAFETY AND THE SAFETY OF OTHERS WHILE PERFORMING THEIR DUTIES.

REDUCED PRINTS ARE APPROX. 1/2 ORIGINAL SCALE

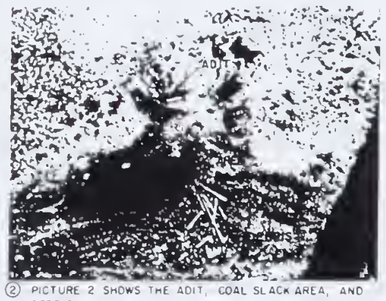
PREPARED BY:

SPECTRUM ENGINEERING
Mining and Civil Engineers

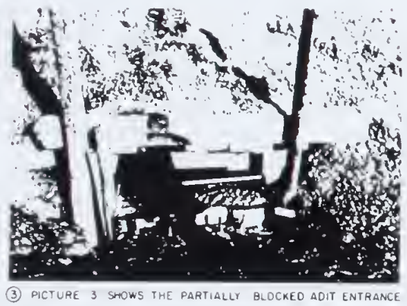
4th Avenue Plaza
1413 4th Avenue North
Billings, Montana 59101



① PICTURE 1 IS AN AERIAL VIEW OF THE BRYAN SITE



② PICTURE 2 SHOWS THE ADIT, COAL SLACK AREA, AND DEBRIS



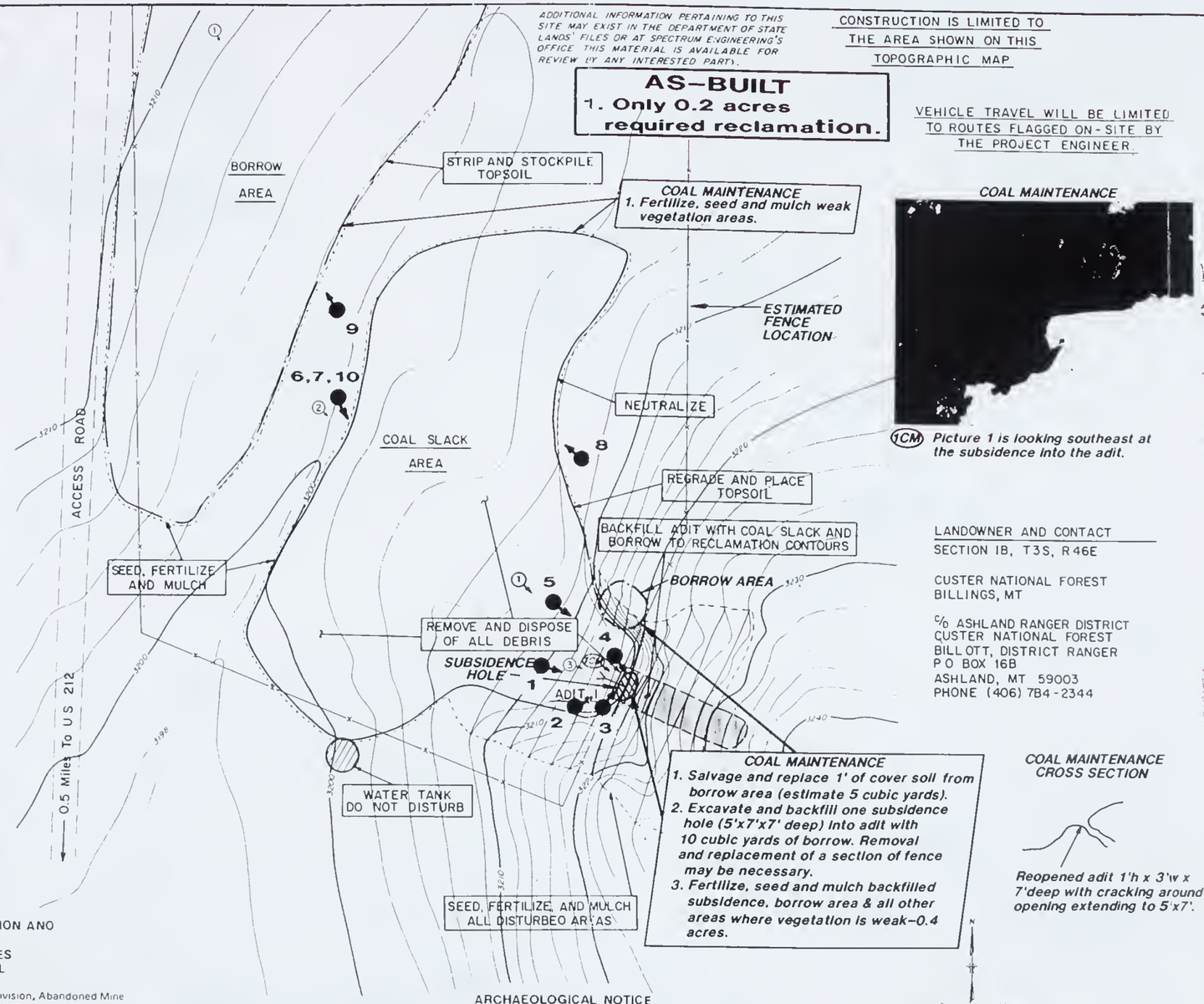
③ PICTURE 3 SHOWS THE PARTIALLY BLOCKED ADIT ENTRANCE

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

AS-BUILT
1. Only 0.2 acres required reclamation.

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP

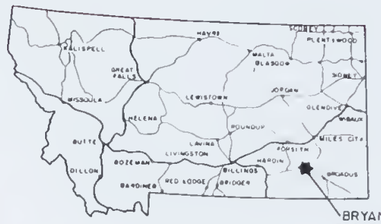
VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.



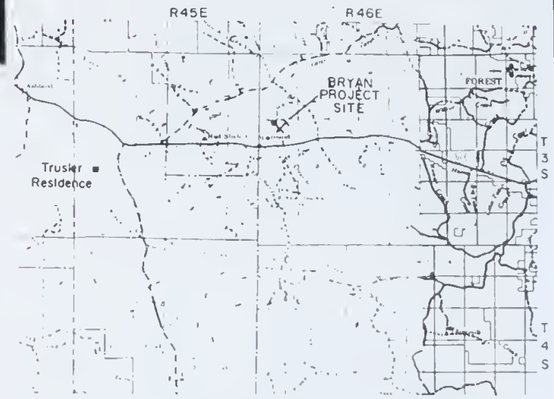
COAL MAINTENANCE
1. Salvage and replace 1' of cover soil from borrow area (estimate 5 cubic yards).
2. Excavate and backfill one subsidence hole (5'x7'x7' deep) into adit with 10 cubic yards of borrow. Removal and replacement of a section of fence may be necessary.
3. Fertilize, seed and mulch backfilled subsidence, borrow area & all other areas where vegetation is weak–0.4 acres.

COAL MAINTENANCE

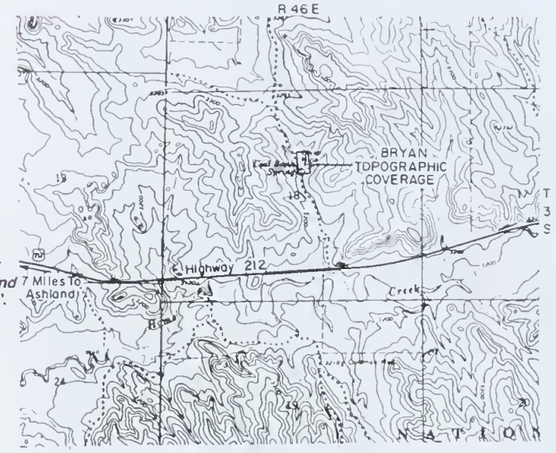
(1CM) *Picture 1 is looking southeast at the subsidence into the adit.*



STATE LOCATION MAP



SCALE IN MILES
VICINITY ACCESS MAP
BLM MAP - TONGUE 38



SCALE IN FEET
SITE LOCATION MAP
COLEMAN DRAW, MT 7 1/2' USGS

LANDOWNER AND CONTACT
SECTION 18, T3S, R46E

CUSTER NATIONAL FOREST
BILLINGS, MT

C/O ASHLAND RANGER DISTRICT
CUSTER NATIONAL FOREST
BILLOTT, DISTRICT RANGER
P O BOX 16B
ASHLAND, MT 59003
PHONE (406) 784-2344

COAL MAINTENANCE CROSS SECTION

Reopened adit 1'h x 3'w x 7'deep with cracking around opening extending to 5'x7'.

SCALE IN FEET
CONTOUR INTERVAL = 2 FT

Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle COLEMAN DRAW, MT Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked.

ARCHAEOLOGICAL NOTICE

ANY KNOWN ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKED BY THE OWNER. AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE DISTURBED WITHOUT THE WRITTEN PERMISSION FROM THE OWNER

LEGEND

- —3220— CONTOUR
- COAL SLACK
- DRAINAGE
- ①→ PICTURE NUMBER AND ORIENTATION
- UNDERGROUND MINE WORKINGS
- OPEN ADIT

REDUCED PRINTS ARE APPROX. ½ ORIGINAL SCALE

CONSTRUCTION PHOTOS

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN
BEST MANAGEMENT PRACTICES FOR STORM WATER CONTROL

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074. The project manager is Joel Chavez.

The construction activity is described in the Coal Maintenance Work Description. The reclamation construction is estimated to disturb and reclaim 0.40 acres during this project. This site is located in the SW¼NE¼ of Sec. 18 T3S, R46E, Powder River County.

The estimated time period will be two days from the start of on-site reclamation construction until the site is permanently fertilized seeded and mulched (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant).

This site is located adjacent to Coal Bank Spring which flows into Home Creek which flows into Otter Creek which flows into the Tongue River.

Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff. Temporary stabilization practices - mulching entire area to be revegetated, and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site).

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the contractor as outlined by the MPDES Storm Water discharge permit erosion control plan.

COAL MAINTENANCE	
BRYAN SITE SECTION 18, T3S, R46E POWDER RIVER COUNTY, MONTANA	
Date: February 1993 Sheet No: 2 of 9	SPECTRUM ENGINEERING Mining and Civil Engineers Billings, Montana

SITE PLAN AND GENERAL LAYOUT	
BRYAN SITE SECTION 18, T3S, R46E POWDER RIVER COUNTY, MONTANA	
STATE OF MONTANA DEPARTMENT OF STATE LANDS ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION	
SPECTRUM ENGINEERING Mining and Civil Engineers 1413 4th AVE NORTH BILLINGS, MONTANA	DATE: August 1990 DRAWN BY: DLD APPROVED BY: GWR REVISIONS: NO / DATE / BY SHEET NO 5 of 11

AS-BUILT DRAWING AND PHOTO INDEX

① PICTURE 1 SHOWS SUBSIDENCE PIT 1

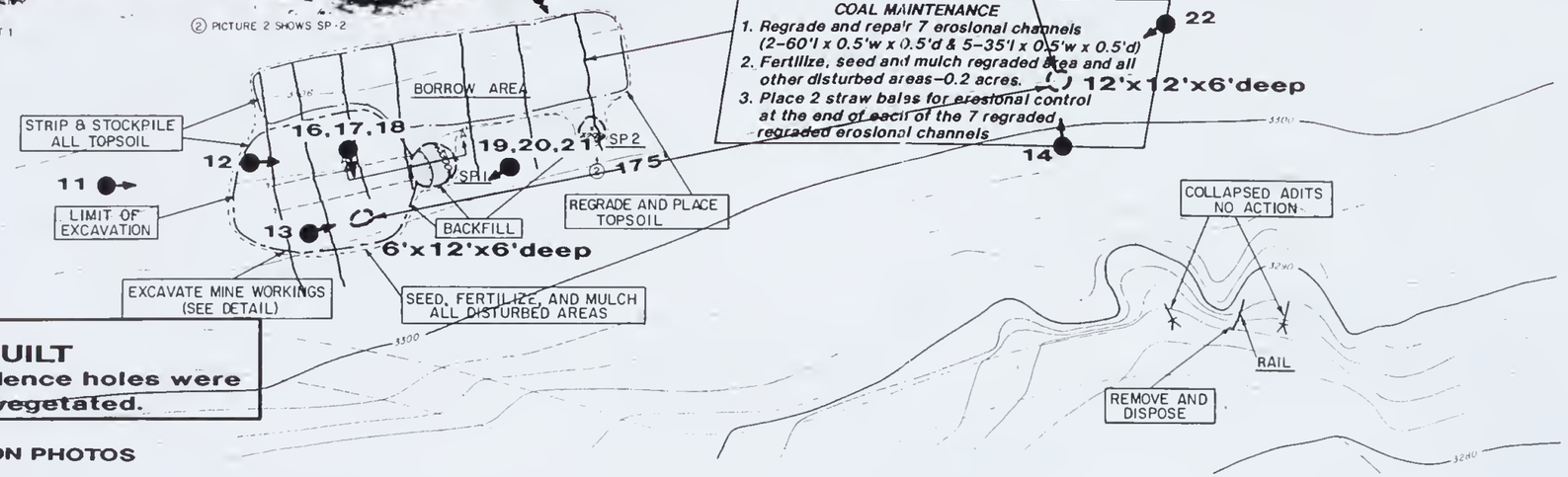
② PICTURE 2 SHOWS SP-2

ARCHAEOLOGICAL NOTICE

ANY KNOWN ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKED BY THE OWNER AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE DISTURBED WITHOUT THE WRITTEN PERMISSION FROM THE OWNER

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

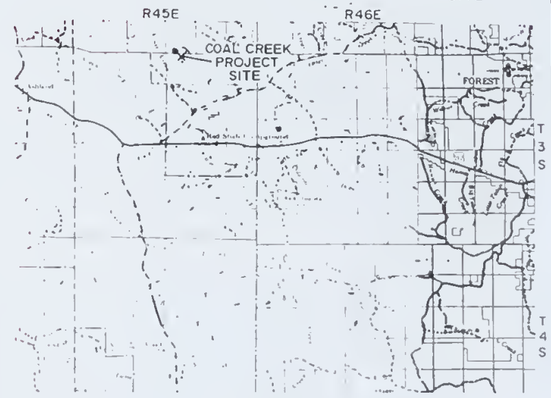


COAL MAINTENANCE

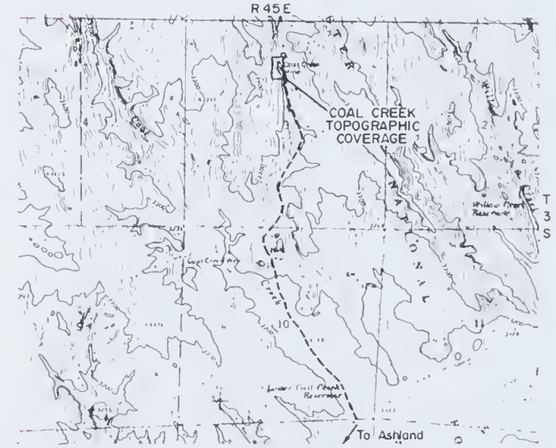
1. *Regrade and repair 7 erosional channels (2-60'l x 0.5'w x 0.5'd & 5-35'l x 0.5'w x 0.5'd)*
2. *Fertilize, seed and mulch regraded area and all other disturbed areas-0.2 acres.*
3. *Place 2 straw bales for erosional control at the end of each of the 7 regraded regraded erosional channels*

STATE LOCATION MAP

COAL CREEK PROJECT SITE

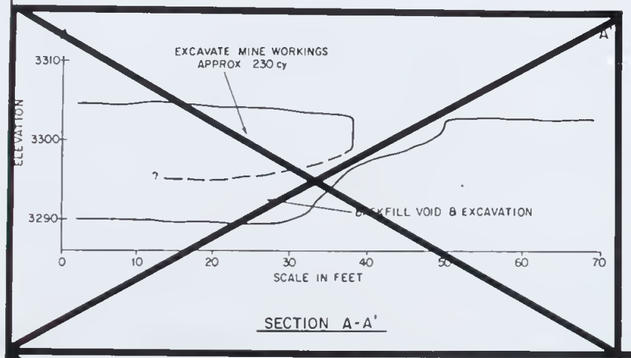


VICINITY ACCESS MAP
BLM MAP TONGUE - 38



SITE LOCATION MAP
WILLOW CROSSING, MONTANA 7 1/2' USGS

CONSTRUCTION PHOTOS



SECTION A-A'

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN
BEST MANAGEMENT PRACTICES FOR STORM WATER CONTROL

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074. The project manager is Joel Chavez.

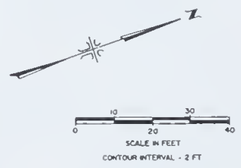
The construction activity is described in the Coal Maintenance Work Description. The reclamation construction is estimated to disturb and relcaim 0.20 acres during this project. This site is located in the NE¼NW¼ of Sec. 3, T3S, R45E, Powder River County.

The estimated time period will be one day from the start of on-site reclamation construction until the site is permanently fertilized seeded and mulched (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant).

This site is located approximately 1 mile from Coal Creek which flows into East Fork Otter Creek which flows into the Tongue River.

Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff: Temporary stabilization practices - mulching entire area to be revegetated and placing straw bales for erosion control; and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site).

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the contractor as outlined by the MPDES Storm Water discharge permit erosion control plan.



REDUCED PRINTS ARE APPROX. ½ ORIGINAL SCALE

LEGEND

- —3300— CONTOUR
- COAL SLACK
- DRAINAGE
- ① → PICTURE NUMBER AND ORIENTATION
- SP 1 SUBSIDENCE PIT (SP) NUMBER (& DEPTH)
- OPEN ADIT

WORK SUMMARY TABLE

ITEM	DESCRIPTION	ACTION	QUANTITY
TOPSOIL	SUBSIDENCES/BORROW AREA STOCKPILES	STRIP AND STOCKPILE PLACE FROM STOCKPILE	40 CY 40 CY 80 CY
SUBSIDENCES			
SP 1	SEE TOPOGRAPHIC MAP	BACKFILL	15 CY
SP 2	SEE TOPOGRAPHIC MAP	BACKFILL	5 CY
TOTAL (EST.)			20 CY
WATER	BACKFILL ROADS AND OTHER AREAS	FOR COMPACTION DUST SUPPRESSION	3.0 KGAL 1.0 KGAL 4.0 KGAL
MINE WORKINGS	SEE MAP	EXCAVATE BACKFILL BACKFILL WITH BORROW	230 CY 230 CY 30 CY 480 CY
DISTURBED AREAS	SUBSIDENCE AND BORROW AREA	REVEGETATE	0.10 ACRES
TOTAL (EST.)			
REVEGETATION OF 0.10 ACRES	FERTILIZER AT 92.5 LBS SEED AT 23 LBS PLS HAY MULCH AT 3,000 LBS	APPLY DRILL SEED SPREAD AND CRIMP	9 POUNDS 2.3 LB PLS 300 POUNDS

WORK DESCRIPTION

- REMOVE RAIL FROM THE COLLAPSED ADIT
- DISPOSE OF ALL DEBRIS
- STRIP AND STOCKPILE 4 INCHES OF TOPSOIL FROM THE BORROW AREA, AREAS OVER MINE VOIDS, AND THE SUBSIDENCE PITS
- EXCAVATE THE UNDERLYING MINE VOIDS
- BACKFILL THE MINE VOIDS, EXCAVATIONS, AND SUBSIDENCES USE STOCKPILED AND BORROW MATERIAL
- PLACE TOPSOIL FROM THE STOCKPILES OVER THE SUBSIDENCE AND BORROW AREAS
- REVEGETATE ALL DISTURBED AREAS

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

Vertical Datum Based On Interpolation Of USGS 2½' Quadrangle WILLOW CROSSING, MT Topography Prepared From Ground Survey Conducted In 1989 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

LANDOWNER AND CONTACT
SECTION 3, T3S, R45E

GREAT NORTHERN PROPERTIES
ATTN: STEVEN SHIRLEY
1101 NORTH 27th STREET - Suite 201
BILLINGS, MT 59101
PHONE: (406) 248-4885

NOTICE

AN ABANDONED COAL MINE UNDERLIES THIS SITE MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

AS-BUILT
Three new subsidence holes were backfilled and revegetated.

COAL MAINTENANCE
COAL CREEK SITE
SECTION 3, T3S, R45E
POWDER RIVER COUNTY, MONTANA

Date	SPECTRUM ENGINEERING
February 1993	Mining and Civil Engineers
Sheet No 3 of 9	Billings, Montana

SITE PLAN AND GENERAL LAYOUT
COAL CREEK SITE
SECTION 3, T3S, R45E
POWDER RIVER COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th AVE NORTH
BILLINGS, MONTANA

DATE August 1990
DRAWN BY DLO
APPROVED BY GWR
REVISIONS: NO | DATE | BY
SHEET NO 6 of 11

AS-BUILT DRAWING AND PHOTO INDEX

ATTACHMENT 3

AS-BUILT DRAWINGS

AND

PHOTO LOCATIONS

28,29

REGRADE, REVEGETATE AND FENCE

BORROW AREA

SP 1

STRAW BALES

SUBSIDENCE BACKFILL (SHADED AREAS)

SPOIL PILE

24,25

26,27

COAL MAINTENANCE
1. Regrade four erosional channels. (40'l x 0.5'w x 0.5'd)
2. Place 2 straw bales for erosion control at the downslope end of each of the 4 regraded erosional channels. (8 bales total)

SALVAGE AND REPLACE TOPSOIL

DEBRIS CLEANUP

CLOSE ADIT

ADIT 1

ACCESS ROAD

CONSTRUCTION IS LIMITED TO THE AREA SHOWN ON THIS TOPOGRAPHIC MAP

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.

WATER RESERVOIR

ACCESS ROAD

SCATTERED DEBRIS CLEANUP

CAR BODY

DEBRIS DISPOSAL

COAL SLACK PILE 1 (NO ACTION)

TRUCK BODY

ADIT 2

SP 24

CLOSE ADIT

COAL SLACK PILE 2 (NO ACTION)

SP 3

SUBSIDENCE BACKFILL (SHADED AREAS)

SP 4

SUBSIDENCE BACKFILL (SHADED AREAS)

TOPSOIL STOCKPILE AREA

CLOSE ADIT AND BACKFILL TRENCH

ADIT 3

DEBRIS CLEANUP

SP 5

SP 7

SP 6

SALVAGE AND REPLACE TOPSOIL (IN & AROUND SHADED AREAS PRIOR TO BACKFILLING)

BORROW AREA

INSTALL OWNER PROVIDED WARNING SIGN

Subsidence Hole 6'x16'x15'deep

Subsidence Hole 8'dia. x 17'deep

31

33,34

32

30

LEGEND

2975 — CONTOUR	SP 7 9' SUBSIDENCE PIT (SP) NUMBER (8 DEPTH)
BUILDING	OPEN ADIT
ACCESS ROAD	CLOSED ADIT
TRAIL	SHAFT
PICTURE NUMBER AND ORIENTATION	SPOIL PILE
FENCE	DRAINAGE

COAL MAINTENANCE
1. Salvage and replace 1' of cover soil from borrow area (estimate 3 cubic yards). Borrow area is adjacent to the subsidence holes.
2. Excavate the two subsidence holes (3' dia. x 17' deep & 6' x 16' x 15' deep) down a minimum of five feet. Then backfill with 2 cubic yards of borrow.
3. Fertilize, seed and mulch backfilled subsidence holes, borrow area, four erosional channels in the north area & all other disturbed areas—0.2 acres.

AS-BUILT
Two small holes had turned into one large 12'x20'x8'deep hole.

CONSTRUCTION PHOTOS

NOTICE

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STATE LOCATION MAP

CROW ROCK PROJECT SITE

R 43 E R 44 E R 45 E

T 13 N T 12 N T 11 N

CROW ROCK PROJECT SITE

24 MILES TO MILES CITY

VICINITY ACCESS MAP
BLM MAP - ROSEBUD 28

R 45 E

CROW ROCK TOPOGRAPHIC COVERAGE

EXISTING ACCESS ROADS

T 12 N

SITE LOCATION MAP
CROW ROCK SE, MONTANA 7 1/2' USGS

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN
BEST MANAGEMENT PRACTICES FOR STORM WATER CONTROL

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 162S 11th Avenue, Helena, Montana 5962D at telephone 1-444-2D74. The project manager is Joel Chavez.

The construction activity is described in the Coal Maintenance Work Description. The reclamation construction is estimated to disturb and reclaim 0.2D acres during this project. This site is located in the SW¼ of Sec 17, T12N, R45E, Custer County.

The estimated time period will be two days from the start of on-site reclamation construction until the site is permanently fertilized, seeded and mulched (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant).

This site is located approximately 1/S mile from East Uall Creek which flows into Uall Creek which flows into Little Dry Creek which flows into Big Dry Creek which flows into Fort Peck Reservoir.

Best Management Practices (BMP'sl during construction to control sediment and erosion in storm runoff: Temporary stabilization practices - mulching entire area to be revegetated and placing straw bales for erosion control; and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site),

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the Contractor as outlined by the MPDES Storm Water discharge permit erosion control plan

DESCRIPTION OF DISTURBANCE SITES

ITEM	DIMENSIONS (FEET)	DEPTH (FEET)	ESTIMATED VOLUME (CUBIC YARDS)
SP 1	14x20	8-14	33 VOID
SP 2A	8x8 5	9	23 VOID
SP 3	18x25	5	44 VOID
SP 4	26x31	5	78 VOID
SP 5	14x27	7	51 VOID
SP 6	13x17	7	30 VOID
SP 7	35x35	9	175 VOID
COAL SLACK PILE 1	5x10	2	NO ACTION
COAL SLACK PILE 2	5x30	4	NO ACTION
SPOIL PILE	65x10	0 to 6	—
AOIT 1	3hx6	15	15 VOID
AOIT 2	3h 4w	5	5 VOID
ADIT 3 8 TRENCH	15x16	6	53 VOID
REVEGETATION	0.5 ACRES		
FARM FENCE			
Type F-4l	270 LINEAR FEET		
Single Panel	I EACH		
Double Panel	4 EACH		
Gate - Type G-2	16 LINEAR FEET		

LANDOWNER - SECTION 17

GREAT NORTHERN PROPERTIES
ATTN: STEVE SHIRLEY
1101 NORTH 27th STREET-Suite 201
BILLINGS, MT 59101
PHONE: (406) 248-4885

SCALE IN FEET
CONTOUR INTERVAL - d FT

Vertical Datum Based On Interpolation To 7½ Quadrangle CROW ROCK SE, MT Topography Prepared From Ground Survey Conducted August 27, 1986 By Spectrum Engineering Using A Plane Table And Alidade This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

ARCHAEOLOGICAL NOTICE

ANY KNOWN ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKED BY THE OWNER AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE DISTURBED WITHOUT THE WRITTEN PERMISSION FROM THE OWNER

REDUCED PRINTS ARE APPROX. ½ ORIGINAL SCALE

WORK DESCRIPTION

BACKFILL SUBSIDENCE PITS AND SEAL ADITS WITH MATERIAL FROM THE SPOIL PILE AREA. REGRADE THE BORROW (SPOIL) AREA TO PROVIDE UNIFORM TRANSITIONS WITH EXISTING CONTOURS. HAUL AWAY CAR AND TRUCK BODIES AND DISPOSE OF ALL DEBRIS. ALL DISTURBED AREAS WILL BE SEEDED, FERTILIZED AND MULCHED. ADDITIONAL DETAILED WORK DESCRIPTIONS ARE LOCATED IN THE SPECIAL PROVISIONS

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

MONTANA
WILLIAM C. MAEHL 5274 E
REGISTERED PROFESSIONAL ENGINEER

COAL MAINTENANCE
CROW ROCK SITE
SECTION 17, T12N, R45E
CUSTER COUNTY, MONTANA
Date: February 1993
Sheet No: 4 of 9
SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings, Montana

SITE PLAN AND GENERAL LAYOUT
CROW ROCK SITE
SECTION 17, T12N, R45E
CUSTER COUNTY, MONTANA
STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE	12-19-86
DRAWN BY	LNR
CHECKED BY	
APPROVED BY	

NO	REVISIONS DATE	BY
	2/87	DLO

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 2

AS-BUILT DRAWING AND PHOTO INDEX

ATTACHMENT 5

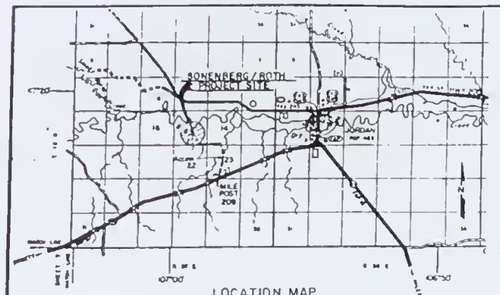
AS-BUILT DRAWINGS

AND

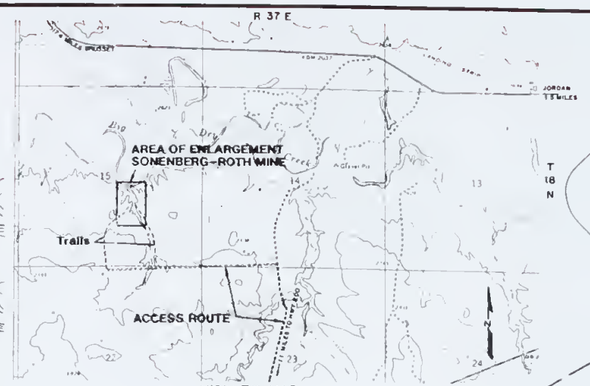
PHOTO LOCATIONS

COAL MAINTENANCE

1. Salvage 1' cover soil from the borrow area and subsidence (estimate 3 cubic yards).
2. Backfill subsidence (8'x5'x7' deap) with borrow material.
3. Place 1' of cover soil over backfilled subsidence and borrow area.
4. Regrada ona erosional channal (60' long x 1' wida x 2' deep).
5. Fertiliza, saad and mulch all disturbed araas (astimata 0.10 acres)
6. Placa 4 straw bales for erosion control at tha down slope end of tha regradad erosional channal



LOCATION MAP
SCALE 1/2"=1 MI



VICINITY MAP
JORDAN QUADRANGLE, 1964
SCALE 1" = 2000'

SONENBERG / ROTH MINE ESTIMATED QUANTITIES	
ITEM DESCRIPTION	UNITS
BANK CAVING	2 HRS
SALVAGE AND REPLACE TOPSOIL	175 CY
CLOSE MINE OPENING (ADITS)	3 Eo
WASTE PILE DISPOSAL	220 CY
SUBSIDENCE GRADING	40 CY
SUBSIDENCE BACKFILL	120 CY
PROVIDE WATER *	
COMPACTION	12.2 MGAL
DUST CONTROL	1.8 MGAL
FERTILIZE, SEED, & MULCH	
SUBSIDENCE GRADING	0.04 AC
SUBSIDENCE BACKFILL	0.03 AC
TOPSOIL STOCKPILE	0.04 AC
UPSTREAM ADIT CLOSURE	0.04 AC
ACCESS ROUTES (EST 5650 LF)	1.61 AC
WASTE PILE DISPOSAL	0.08 AC
MATERIAL DISPOSAL AREA	0.08 AC
OWNER PROVIDED SIGN	2 Eo

* QUANTITY BASED ON ESTIMATED RATE OF 19.5 GAL/C.Y. FOR COMPACTION.

Assumptions for Estimating
In-Situ Moisture Content = 5%
Optimum Moisture Content = 9.1%
Material Density = 120 lbs/Cu. Ft.

QUANTITY REQUIRED FOR DUST CONTROL ASSUMED TO BE ½ OF AMOUNT REQUIRED FOR COMPACTION.

PICTURE 1 IS A HELICOPTER VIEW OF SUBSIDENCE HOLE AND EROSIONAL CHANNEL LOOKING EAST.

SEED, FERTILIZE & MULCH ALL DISTURBED AREAS
BANK CAVING
SUBSIDENCE HOLE
SALVAGE & REPLACE TOPSOIL
SUBSIDENCE BACKFILL
BORROW FROM UPSTREAM ADIT CLOSURE EXCAVATIONS
BORROW AREA
DENOTES TOPSOIL STOCKPILE
EROSIONAL CHANNEL
ADIT
WASTE PILE DISPOSAL AREA
STRAW BALES
CLOSE MINE OPENING
SALVAGE & REPLACE TOPSOIL
DEBRIS CLEANUP
ACCESS ROUTE
WASTE PILE DISPOSAL
SUBSIDENCE GRADING
DENOTES TOPSOIL STOCKPILE
BANK CAVING
SUBSIDENCE BACKFILL
BORROW FROM SUBSIDENCE GRADING AREA
SALVAGE & REPLACE TOPSOIL
INSTALL OWNER PROVIDED SIGN
ACCESS ROUTE AS STAKED IN THE FIELD
DEBRIS CLEANUP ENTIRE SITE
INSTALL OWNER PROVIDED SIGN
NOTE EXISTING ROAD TO WEST BANK CROSSES STREAM 2100 ± UPSTREAM
DENOTES TOPSOIL STOCKPILE
SUBSIDENCE BACKFILL
SALVAGE & REPLACE TOPSOIL
DEBRIS CLEANUP
BORROW FROM ADJACENT ADIT CLOSURE EXCAVATIONS
SALVAGE & REPLACE TOPSOIL
ADIT
FINISHED CONTOUR LINES 2:1 SLOPES
CLOSE MINE OPENING
SEE DETAIL THIS SHEET
ACCESS ROUTE AS STAKED IN THE FIELD
1 990.90
2 999.02
3 1009.58
10,250 E
10,000 E
Big Dry Creek

ARCHAEOLOGICAL NOTICE

ANY KNOWN ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKED BY THE OWNER AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE DISTURBED WITHOUT THE WRITTEN PERMISSION FROM THE OWNER

ADDITIONAL INFORMATION PERTAINING TO THESE SITES MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

NO.	NORTH	EAST	ELEV
C.P.	5,000.00	10,000.00	1000.00
1	5,549.06	10,155.49	990.90
2	5,143.47	9,761.54	999.02
3	4,751.73	9,583.02	1009.58
4	4,493.18	9,885.07	1012.14
5	4,698.84	10,336.83	1006.58

- NOTICE -

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST THE EXENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.
ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS FILES OR AT THE OFFICES OF THEIR ENGINEERING REPRESENTATIVE AND SUCH MATERIAL IS AVAILABLE FOR REVIEW BY THOSE INTERESTED IN DOING SO.
Geodetic Grid North Based On Magnetic Bearing Vertical Datum Based On Assumed Elevation 1000.00' At C.P. Ground Control Surveys Conducted August 10, 1984 By Montana Department of State Lands.

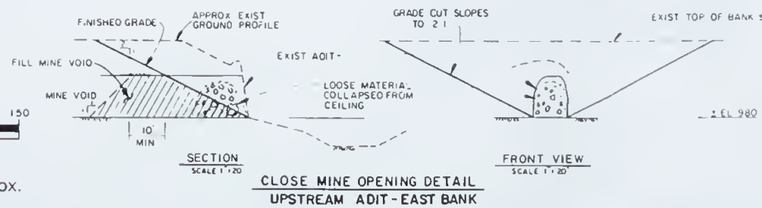
Topography Prepared From Hasselblad Camera, 50 MM Distagon Lense, Aerial Photography, 1"=725', August 10, 1984, With Lense Correction Applied. This Topography Has Not Been Field Checked.
Associated Surveys, Inc., Billings, Montana.

LEGEND

PAVED ROAD
IMPROVED ROAD
TRAIL
BRIDGE
CATTLE GUARD
CULVERT
FENCE
RAILROAD
POWER POLE
TREES
DRAINAGE
POND
SWAMP
INDEX CONTOUR
INTERMEDIATE CONTOUR
DEPRESSION CONTOUR
BUILDING
DEPTH OF SUBSIDENCE

CONTOUR INTERVAL 2'
0 25 50 100 150
GRAPHIC SCALE IN FEET
ORIGINAL SCALE 1" = 50'

REDUCED PRINTS ARE APPROX. ½ ORIGINAL SCALE



CLOSE MINE OPENING DETAIL
UPSTREAM ADIT - EAST BANK

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN BEST MANAGEMENT PRACTICES FOR STORM WATER CONTROL

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074 The project manager is Joel Chavez.

The construction activity is described in the Coal Maintenance Work Description. The reclamation construction is estimated to disturb and reclaim 0.10 acres during this project. This site is located in the SE¼ of Sec 15, T18N, R37E, Garfield County

The estimated time period will be two days from the start of on-site reclamation construction until the site is permanently fertilized seeded and mulched (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant).

This site is located approximately 400 feet from Big Dry Creek which flows into Fort Peck Reservoir

Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff: Temporary stabilization practices - mulching entire area to be revegetated and placing straw bales for erosion control; and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site),

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the contractor as outlined by the MPOES Storm Water discharge permit erosion control plan.

LANDOWNER
ALL SEC 15, T18N, R37E
COLEMAN C & VIRGINIA LOU MURNION
PO BOX 13
JORDON, MT 59337
PH (406) 557-2251

COAL MAINTENANCE
SONENBERG-ROTH SITE
SECTION 15, T18N, R37E
GARFIELD COUNTY, MONTANA
Date April 1993
Sheet No 5 of 9
SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings, Montana

STATE OF MONTANA
DEPT OF STATE LANDS
RECLAMATION DIVISION

SONENBERG / ROTH
S.E ¼, SEC 15, T18N, R37E
GARFIELD COUNTY, MONTANA

ASSOCIATED SURVEYS INC
land & aerial
BILLINGS, MONTANA

L. C. Hanson Co.
CONSULTING CIVIL SANITARY MUNICIPAL AND STRUCTURAL ENGINEERS
HELENA, MONTANA

SONENBERG/ROTH MINE-RECLAMATION PLAN
SITE PLAN AND GENERL LAYOUT

DRAWN BY L D R
CHECKED BY S M Y
APPROVED BY
DATE
REVISED
SCALE 1" = 50'
SHEET NO 2 OF 5
85-10-14

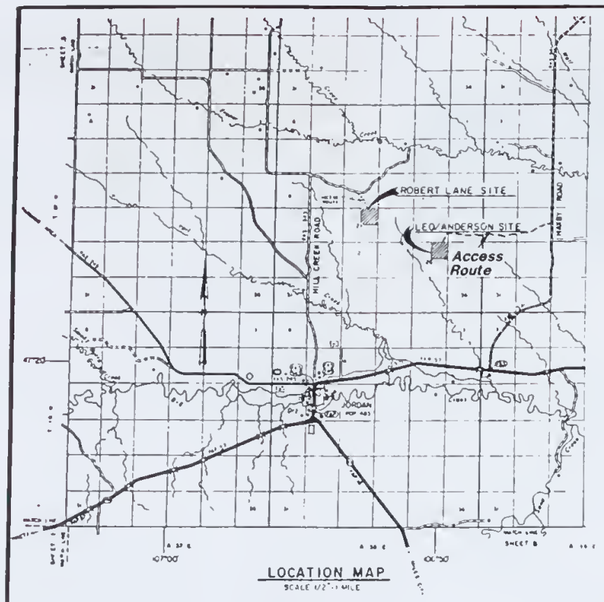
DROPPED-LANDOWNER DENIED CONSENT

ATTACHMENT 5

AS-BUILT DRAWINGS

AND

PHOTO LOCATIONS



LOCATION MAP
SCALE 1/2" = 1 MILE

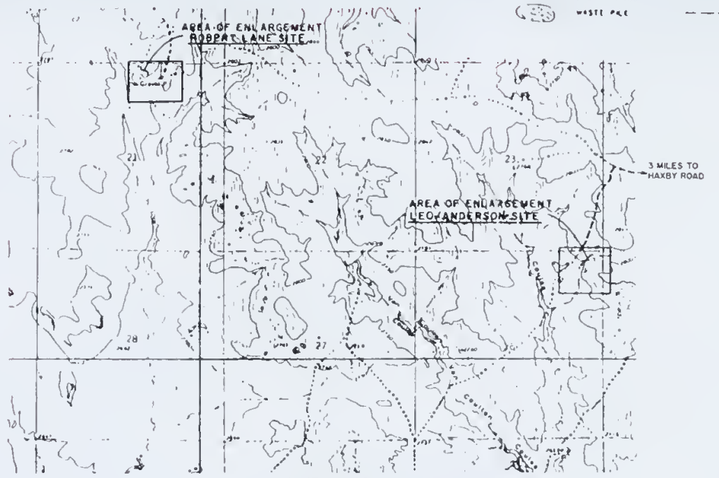
- NOTICE -

AN ABANDONED COAL MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT THE OFFICES OF THEIR ENGINEERING REPRESENTATIVE AND SUCH MATERIAL IS AVAILABLE FOR REVIEW BY THOSE INTERESTED IN DOING SO.

LEGEND

PAVED ROAD	TREES
IMPROVED ROAD	DRAINAGE
TRAIL	POND
BRIDGE	SWAMP
CATTLE GUARD	INDEX CONTOUR
CULVERT	INTERMEDIATE CONTOUR
FENCE	DEPRESSION CONTOUR
RAILROAD	BUILDING
POWER POLE	DEPTH OF SUBSIDENCE
ADIT	COLLAPSED ADIT
ACCESS ROUTE	SLOPE
BREAK IN SLOPE	CONSTRUCTION LIMITS
WASTE PILE	SUBSIDENCE GRADING LIMITS



VICINITY MAP
JORDAN NE QUADRANGLE, 1964
JORDAN NW QUADRANGLE, 1964
SCALE 1" = 2000

LEO/ANDERSON SITE ESTIMATED QUANTITIES	
ITEM DESCRIPTION	UNITS
SALVAGE AND REPLACE TOPSOIL	100 CY
BANK CAVING	2 HRS
CLOSE MINE OPENING	
AIR VENT PIPE	4 EA
SHAFT	1 EA
SUBSIDENCE BACKFILL	50 CY
SUBSIDENCE GRADING	20 CY
PROVIDE WATER *	
COMPACTION	17 MGAL
DUST CONTROL	0.3 MGAL
SEED, FERTILIZE, AND MULCH	0.1 AC
OWNER PROVIDED SIGN	1 EA

* QUANTITY BASED ON ESTIMATED RATE OF 19.5 GAL/C.Y. FOR COMPACTION.

Assumptions for Estimating
In-Situ Moisture Content - 8%
Optimum Moisture Content - 13%
Material Density - 120 Lbs/Cu. Ft.

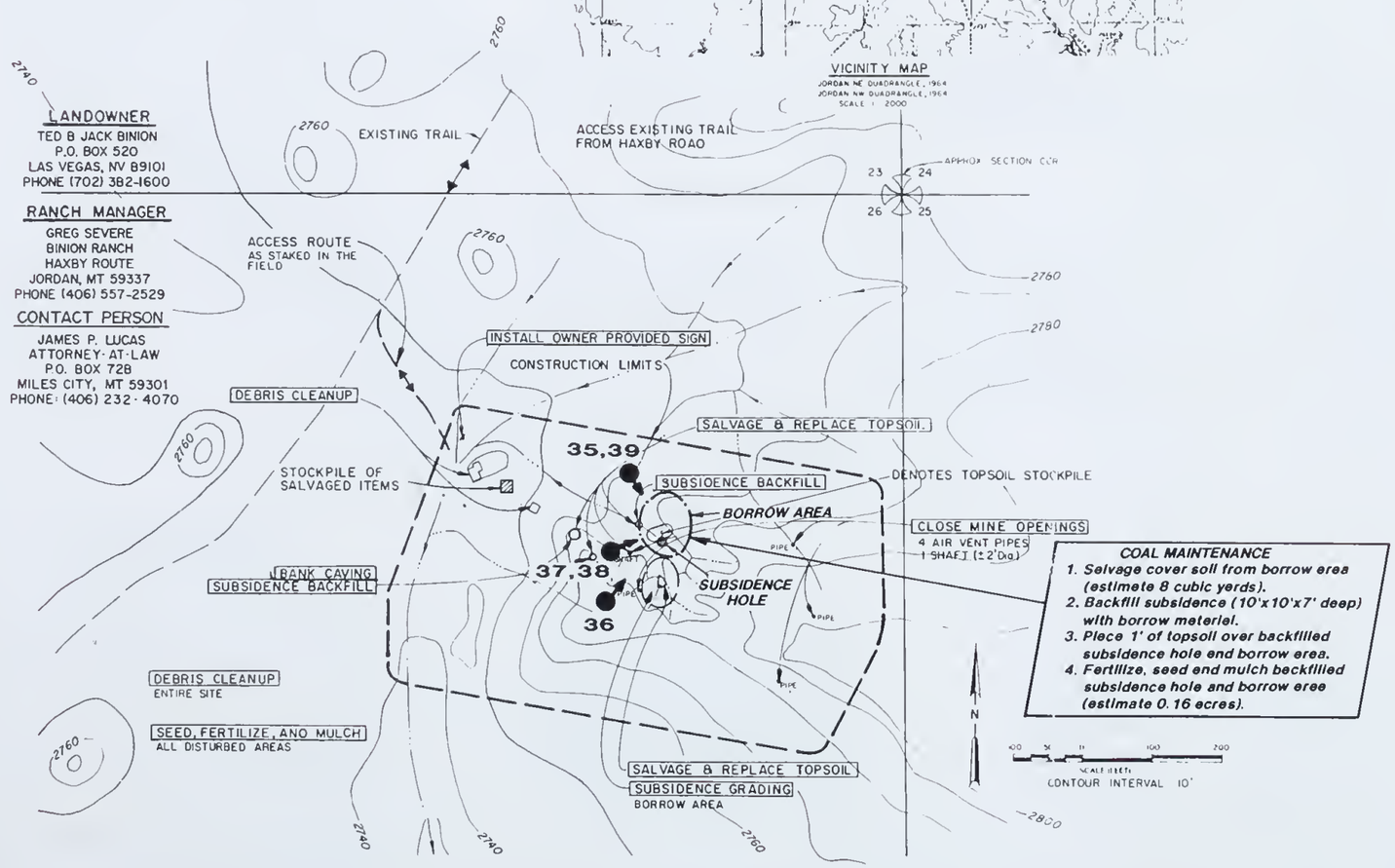
QUANTITY REQUIRED FOR DUST CONTROL ASSUMED TO BE 15% OF AMOUNT REQUIRED FOR COMPACTION.

ROBERT LANE SITE ESTIMATED QUANTITIES	
ITEM DESCRIPTION	UNITS
SALVAGE AND REPLACE TOPSOIL	40 CY
CLOSE MINE OPENING - ADIT	1 EA
SUBSIDENCE BACKFILL	70 CY
WASTE PILE DISPOSAL	60 CY
WATER FLOODING	7.0 MGAL
PROVIDE WATER *	3.0 MGAL
INTERCEPTOR DITCH	100 L.F.
SEED, FERTILIZE, AND MULCH	0.3 AC
OWNER PROVIDED SIGN	1 EA

* QUANTITY BASED ON ESTIMATED RATE OF 19.5 GAL/C.Y. FOR COMPACTION

Assumptions for Estimating
In-Situ Moisture Content - 8%
Optimum Moisture Content - 13%
Material Density - 120 Lbs/Cu. Ft.

QUANTITY REQUIRED FOR DUST CONTROL ASSUMED TO BE 15% OF AMOUNT REQUIRED FOR COMPACTION



LEO/ANDERSON SITE

CONSTRUCTION PHOTOS

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN
BEST MANAGEMENT PRACTICES FOR STORM WATER CONTROL

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074 The project manager is Joel Chavez

The construction activity is described in the Coal Maintenance Work Description. The reclamation construction is estimated to disturb and reclaim 0.16 acres during this project. This site is located in the NE¼NE¼ of Sec. 26, T19N, R3BE, Garfield County

The estimated time period will be one day from the start of on-site reclamation construction until the site is permanently fertilized seeded and mulched (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant).

This site is located approximately 1/5 mile from Van Coulten Coulee which flows into Big Dry Creek which flows into Fort Peck Reservoir.

Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff. Temporary stabilization practices - mulching entire area to be revegetated; and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site),

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the contractor as outlined by the MPDES Storm Water discharge permit erosion control plan

ARCHAEOLOGICAL NOTICE

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ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.

REDUCED PRINTS ARE APPROX. ½ ORIGINAL SCALE

L. C. Hanson Co.
CONSULTING, CIVIL, SANITARY MUNICIPAL AND STRUCTURAL ENGINEERS
HELENA, MONTANA

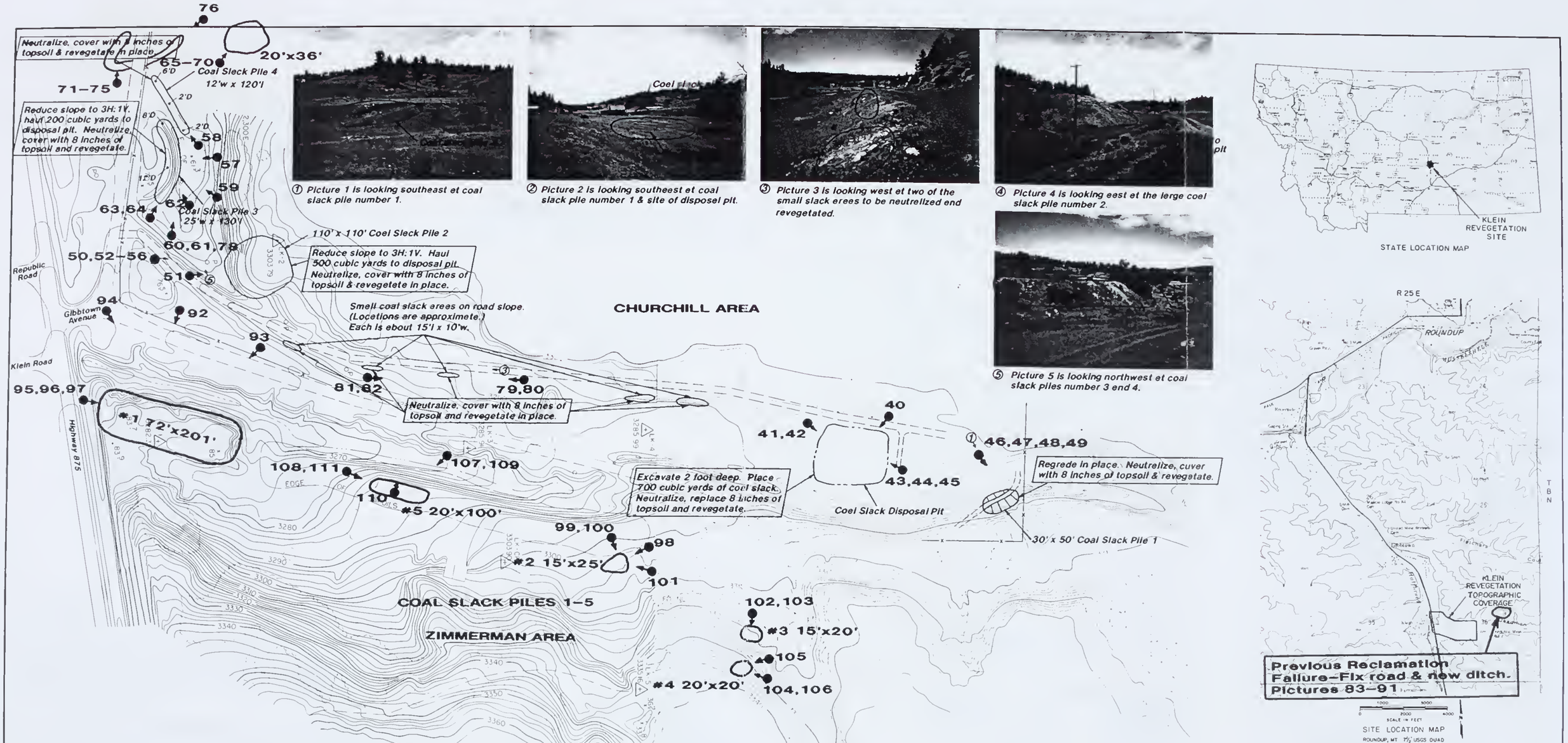
LEO/ANDERSON ~~& ROBERT LANE~~ RECLAMATION PLAN
GENERAL LAYOUT & SITE PLAN

DESIGNED TJF
DRAWN
CHECKED SMY
SURVEYED BY
DATE
REVISED
SCALE 1" = 100'
SHEET NO. 4 of 5
DATE OF 1ST PHOTO 10-20-92
DATE OF LAST PHOTO 10-22-92

COAL MAINTENANCE
LEO/ANDERSON SITE
SECTION 26, T19N, R38E
GARFIELD COUNTY, MONTANA

Date April 1993
Sheet No. 6 of 9
SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings, Montana

AS-BUILT DRAWING AND PHOTO INDEX



① Picture 1 is looking southeast et coal slack pile number 1.

② Picture 2 is looking southeest et coal slack pile number 1 & site of disposel pit.

③ Picture 3 is looking west et two of the small slack erees to be neutrelized end revegetated.

④ Picture 4 is looking eest et the lerge coel slack pile number 2.

⑤ Picture 5 is looking northwest et coal slack piles number 3 end 4.

STATE LOCATION MAP

SITE LOCATION MAP
ROUNDUP, MT 7½' USGS QUAD

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN BEST MANAGEMENT PRACTICES FOR STORM WATER CONTROL

The Owner is the Depanment of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074 The project manager is Joel Chavez

The construction activity is described in the Coal Maintenance Work Description The reclamation construction is estimated to disturb and reclaim 0 80 acres during this project This site is located in the N½SW¼ and the S½NW¼ of Section 36, T8N, R25E, Musselshell County

The estimated time period will be four days from the stan of on-site reclamation construction until the site is permanently fertilized seeded and mulched (long term erosion controls are installed) This is the time from site arrival until demobilization (weather dependant)

This site is located approximately 500 feet from Half Breed Creek which flows into the Musselshell River

Best Management Practices (BMP s) during construction to control sediment and erosion in storm runoff Temporary stabilization practices - mulching entire area to be revegetated and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site)

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the contractor as outlined by the MPDES Storm Water discharge permit erosion control plan

COAL MAINTENANCE WORK DESCRIPTION

1 EXCAVATE COAL SLACK DISPOSAL PIT (100'X120') TO 2 FOOT DEPTH AND STOCKPILE TOPSOIL ADJACENT TO IT (900 CY)
2 REDUCE THE SLOPES ON COAL SLACK PILE 2 (500 CY) AND PILE 3 (200 CY) AND BURY MATERIAL IN THE DISPOSAL PIT
3 NEUTRALIZE THE FOUR COAL SLACK PILES, FIVE SMALL SLACK AREAS, AND THE DISPOSAL PIT WITH 11 2 TONS OF LIME (0 80 ACRES x 14 TONS PER ACRE)
4 RESPREAD STOCKPILED TOPSOIL OVER ALL NEUTRALIZED AREAS (COAL SLACK PILES, COAL SLACK AREAS AND DISPOSAL PIT) TO A DEPTH OF 8 INCHES
4 FERTILIZE SEED, AND MULCH ALL THE NEUTRALIZED AREAS AND ALL OTHER DISTURBED AREAS (0 8 ACRES)

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

LEGEND
3220 CONTOUR
COAL SLACK
DRAINAGE
① PICTURE NUMBER AND ORIENTATION

N
SCALE IN FEET
CONTOUR INTERVAL 2 FT

Topography Prepared From Hasselblad Camera, 50 MM Distagon Lense, Aerial Photography, 1"=800' This Topography Is Of Reconnaissance Class And Has Not Been Field Checked Associated Surveys Inc., Billings, Montana

CONSTRUCTION PHOTOS

ARCHAEOLOGICAL NOTICE

ANY KNOWN ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKED BY THE OWNER AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE DISTURBED WITHOUT THE WRITTEN PERMISSION FROM THE OWNER

REDUCED PRINTS ARE APPROX. ½ ORIGINAL SCALE

HAZARD NOTICE

MANY POTENTIAL HAZARDS EXIST AT THIS SITE THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN

THE CONTRACTOR, SUBCONTRACTORS, AND THEIR EMPLOYEES WILL COMPLY WITH ALL APPLICABLE LOCAL STATE, AND FEDERAL SAFETY REGULATIONS IN THE PERFORMANCE OF THE REQUIRED WORK CONTRACTORS AND OTHER PERSONS WORKING AT THE SITES SHALL BE FULLY RESPONSIBLE FOR APPRISING THEMSELVES OF ANY HAZARDOUS CONDITIONS WHICH MAY EXIST AND SHALL TAKE WHATEVER STEPS ARE NECESSARY TO INSURE THEIR SAFETY AND THE SAFETY OF OTHERS WHILE PERFORMING THEIR DUTIES

LANDOWNER

ALAN CHURCHILL
1219 2nd EAST
ROUNOUP, MT 59072
PHONE: (406) 323-1180 (HOME)
(406) 323-2403 (WORK)

SITE PLAN AND GENERAL LAYOUT

KLEIN REVEGETATION SITE
SECTION 36, T8N, R25E
MUSSELSHELL COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE	July 1993
DRAWN BY	DLO
CHECKED BY	
APPROVED BY	WCM

NO	REVISIONS	DATE	BY

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th AVE NORTH
BILLINGS MONTANA

SHEET NO 7 of 9

AS–BUILT DRAWING AND PHOTO INDEX

COAL MAINTENANCE

① Picture 1 is a close-up of the adit opening looking east.

COAL MAINTENANCE

② Picture 2 shows the topography and entrance of the opening from a helicopter view looking east.

HAZARD NOTICE

MANY POTENTIAL HAZAROS EXIST AT THIS SITE. THE EXTENT OF THESE HAZAROS IS NOT FULLY KNOWN

THE CONTRACTOR, SUBCONTRACTORS, ANO THEIR EMPLOYEES WILL COMPLY WITH ALL APPLICABLE LOCAL, STATE, ANO FEDERAL SAFETY REGULATIONS IN THE PERFORMANCE OF THE REQUIREO WORK. CONTRACTORS ANO OTHER PERSONS WORKING AT THE SITES SHALL BE FULLY RESPONSIBLE FOR APPRISING THEMSELVES OF ANY HAZARDOUS CONOITIONS WHICH MAY EXIST ANO SHALL TAKE WHATEVER STEPS ARE NECESSARY TO INSURE THEIR SAFETY ANO THE SAFETY OF OTHERS WHILE PERFORMING THEIR DUTIES

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN BEST MANAGEMENT PRACTICES FOR STORM WATER CONTROL

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074 The project manager is Joel Chavez.

The construction activity is described in the Coal Maintenance Work Description. The reclamation construction is estimated to disturb and reclaim 0.01 acres during this project. This site is located in the NW¼ NW¼ of Sec. 36 T4S, R22E, Carbon County.

The estimated time period will be ½ day from the start of on-site reclamation construction until the site is permanently fertilized, seeded and mulched (long term erosion controls are installed). This is the time from site arrival until demobilization (weather dependant).

This site is located approximately 1500' from Elbow Creek which flows into the Clarks Fork of the Yellowstone which flows into the Yellowstone River.

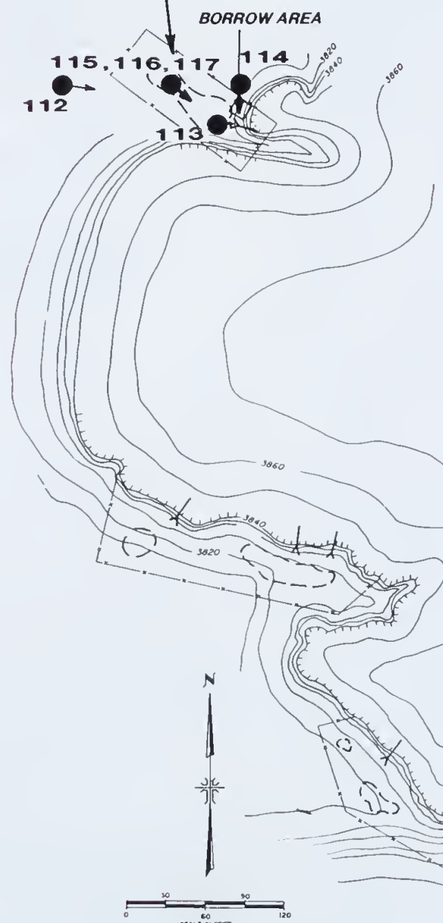
Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff: Temporary stabilization practices - mulching entire area to be revegetated; and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site).

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the Contractor as outlined by the MPDES Storm Water discharge permit erosion control plan

ADDITIONAL INFORMATION PERTAINING TO THESE SITES MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTEO PARTY.

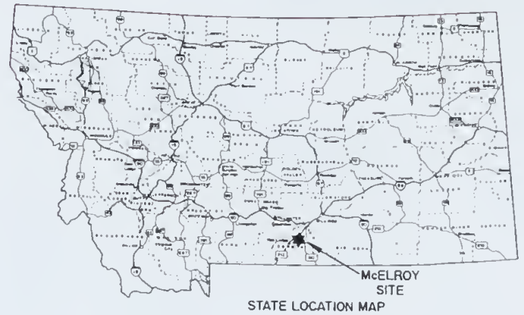
COAL MAINTENANCE

1. Salvage 1' of cover soil from the borrow area (estimate 3 cubic yards).
2. Excavate adit opening to allow backfilling and stockpile material (estimate 1.5 cubic yards).
3. Backfill adit with borrow material and stockpiled material from excavation of adit opening (estimate 5 cubic yards plus 1.5 cubic yards from excavation step.
4. Place 1' of cover soil over backfilled subsidence and sealed adit.
5. Fertilize, seed and mulch all disturbed areas (estimate 0.01 acres).

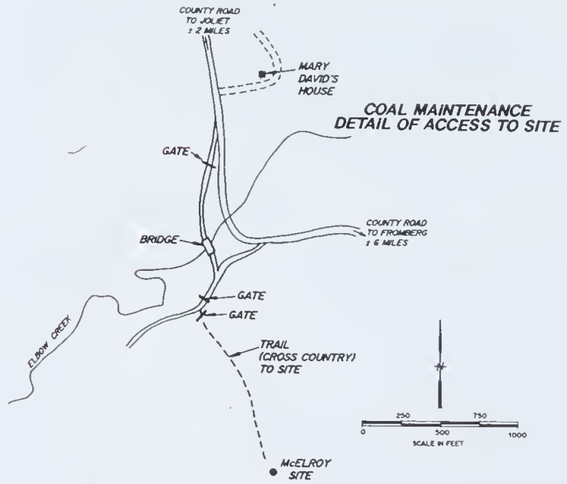


ARCHAEOLOGICAL NOTICE

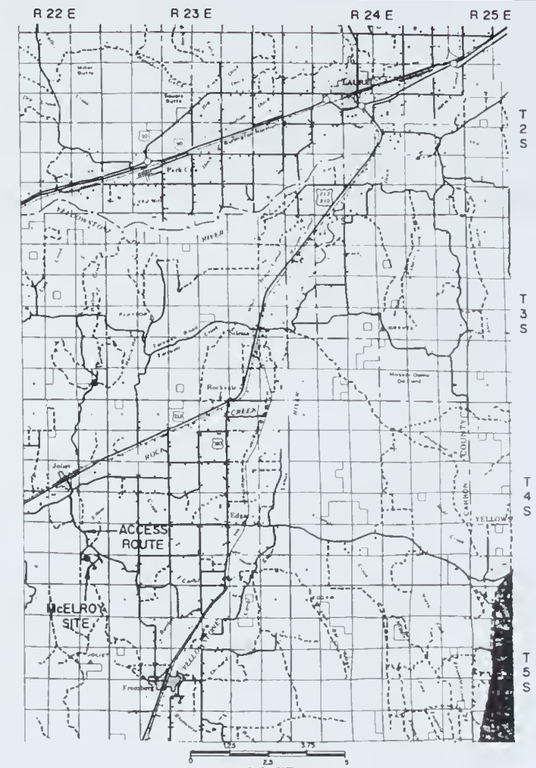
ANY KNOWN ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKEO BY THE OWNER. AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE OISTURBEO WITHOUT THE WRITTEN PERMISSION FROM THE OWNER



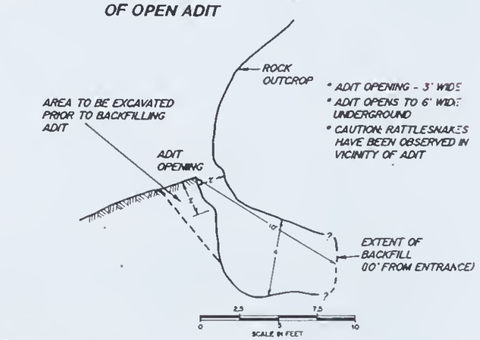
STATE LOCATION MAP



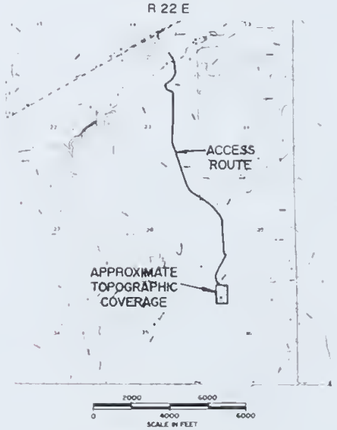
COAL MAINTENANCE
DETAIL OF ACCESS TO SITE



VICINITY ACCESS MAP
BLM MAP - PRYOR 36



COAL MAINTENANCE CROSS SECTION OF OPEN ADIT



SITE LOCATION MAP
FROMBERG, MT 7 1/2' USGS QUAD

LANDOWNER/CONTACT
STATE OF MONTANA (ALL OF SEC. 36)
C/O DEPT. OF STATE LANDS
JEFF HAGENER, CHIEF
SURFACE MANAGEMENT BUREAU
LAND ADMINISTRATION DIVISION
1625 11TH AVENUE
HELENA, MT 59620
PHONE: (406) 444-2074

ACCESS OWNER AND LESSEE
LESSEE FOR ALL OF SECTION 36 AND OWNER OF ACCESS ROUTE IN SECTION 25

MRS. MARY DAVID
P.O. BOX 215
JOLIET, MT 59041
PHONE: (406)962-3433

CONSTRUCTION PHOTOS

REDUCED PRINTS ARE APPROX. ½ ORIGINAL SCALE

Topography Based On USGS 7½' Quadrangle: FROMBERG, MT. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

SITE PLAN AND GENERAL LAYOUT

McELROY SITE
SECTION 36, T4S, R22E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th AVE NORTH
BILLINGS, MONTANA

DATE June, 1993
DRAWN BY: RMS
APPROVED BY
REVISIONS: NO | DATE | BY

SHEET NO 8 of 9

AS-BUILT DRAWING AND PHOTO INDEX

COAL MAINTENANCE

⑦ Picture 1 is a helicopter view of air shaft and failed grate looking to the south.

COAL MAINTENANCE

1. Remove and salvage steel grata from Shaft #1.
2. Backfill Shaft #1 (12'x18'x26' daap) with material from Wasta Dump #4.
3. Replaca salvagad steel grata over backfillad Shaft #1 after shaft is backfilled flush with ground surface.
4. Aftar placement of grata, rebuild slopa west of and adjacant to shaft using material from Wasta Dump #4. Rebuild slopa to bland with surrounding topography approximately 10' to the south and continua to 20' north of Shaft #1 (estimate 175 cubic yards).
5. Excavate a runoff diversion ditch on tha north and and the south end of the rabuilt slopa as shown.
6. Ravegetate – broadcast sead and fertilize.
7. Place straw bales for erosion control at the toe of the rebuilt slopa.

AS–BUILT

2. Backfill quantity = 562.5cy.

6. Revegetated 0.42 acres.

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN
BEST MANAGEMENT PRACTICES FOR STORM WATER CONTROL

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074. The project manager is Joel Chavez

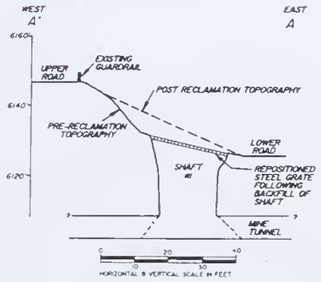
The construction activity is described in the Maintenance Work Description. The reclamation construction is estimated to disturb and reclaim 0.22 acres during this project. This site is located in the NE¼NE¼ of Sec. 8, T9S, R27E, Carbon County

The estimated time period will be four days from the start of on-site reclamation construction. This is the time from site arrival until demobilization (weather dependant)

This site is located approximately 1½ miles from Crooked Creek. This site is extremely dry and very little background vegetation exists. The waste dump that will be used to backfill the shaft and rebuild the slope adjacent to the shaft is comprised predominantly of rock. There is currently no topsoil over the waste dump and there is no topsoil on or near the site to promote revegetation. However, revegetation efforts will be attempted for this site. Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff: Temporary stabilization practices - placing straw bales for erosion control; and Permanent stabilization practices - seeding and fertilizing (100% revegetation of the site).

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the contractor as outlined by the MPDES Storm Water discharge permit erosion control plan

COAL MAINTENANCE
CROSS SECTION OF SHAFT #1 AND SLOPE TO BE REBUILT



REDUCED PRINTS ARE APPROX. ½ ORIGINAL SCALE

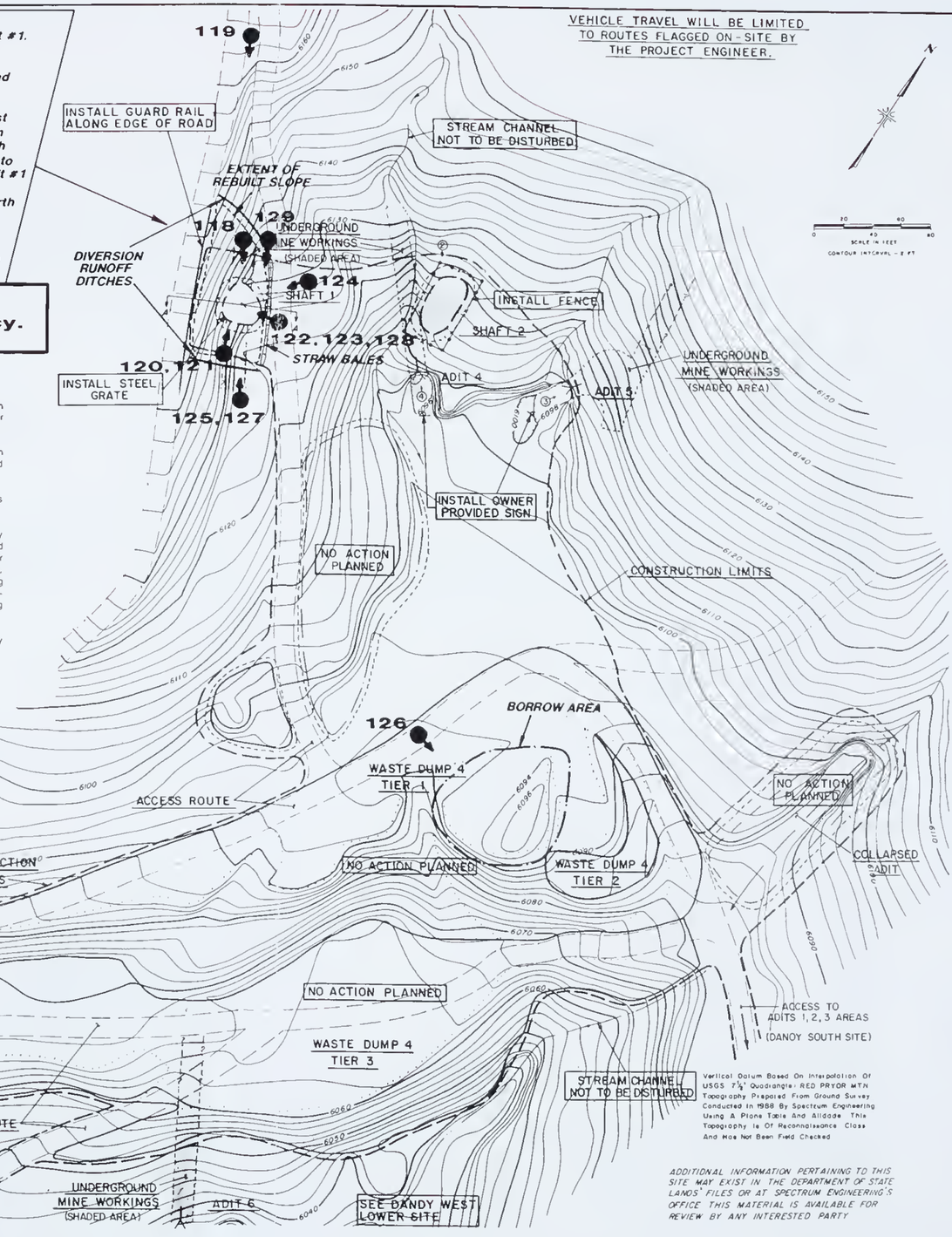
ARCHAEOLOGICAL NOTICE

ANY KNOWN ARCHAEOLOGICAL MATERIALS NEAR THE CONSTRUCTION AREAS WILL BE MARKED BY THE OWNER. AT NO TIME SHALL THESE ARCHAEOLOGICAL MATERIALS BE DISTURBED WITHOUT THE WRITTEN PERMISSION FROM THE OWNER

NOTES TO CONTRACTOR

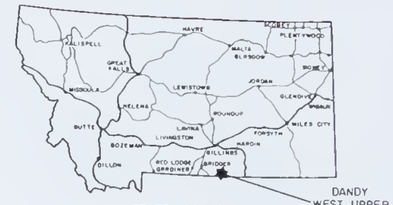
1 Claim corner markers are not to be disturbed
2 Prior to construction, all drillholes will be staked and flagged by the Department's Representative and are not to be disturbed

VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED ON-SITE BY THE PROJECT ENGINEER.



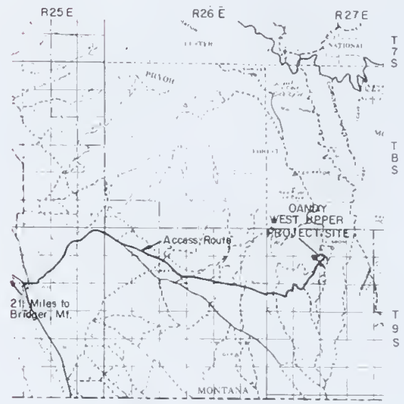
Vertical Datum Based On Interpolation Of USGS 7½' Quadrangle: RED PRYOR MTN Topography Prepared From Ground Survey Conducted In 1988 By Spectrum Engineering Using A Plane Table And Alidade. This Topography Is Of Reconnaissance Class And Has Not Been Field Checked

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY

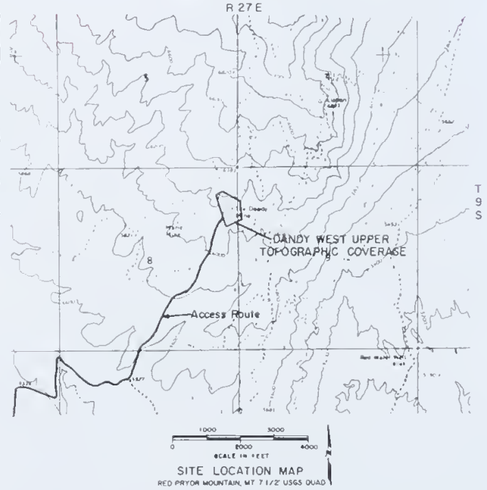


STATE LOCATION MAP

DANDY WEST UPPER PROJECT SITE



VICINITY ACCESS MAP
BLM MAP - PRYOR 36



SITE LOCATION MAP
RED PRYOR MOUNTAIN, MT 7 1/2' USGS QUAD

LEGEND

- —6050— CONTOUR
- WASTE DUMP
- DRAINAGE
- PICTURE NUMBER AND ORIENTATION
- UNDERGROUND MINE WORKINGS
- OPEN ADIT
- CONSTRUCTION PHOTOS

LANDOWNER AND CONTACT

KEN HANIFY
BUREAU OF LAND MANAGEMENT
BILLINGS RESOURCE AREA
810 E. MAIN
BILLINGS, MT 59105
PHONE (406) 657-6262

MINERAL CLAIMANT

JAMES J STOICK
1600 AVENUE E
BILLINGS, MT. 59102
PHONE (406) 252-1438

NOTICE

AN ABANDONED MINE UNDERLIES THIS SITE. MANY POTENTIAL HAZARDS EXIST. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN. CONTRACTORS AND OTHER PERSONS WORKING AT THE SITE SHALL APPRISE THEMSELVES OF THE CONDITIONS AND TAKE WHATEVER STEPS ARE DEEMED NECESSARY TO INSURE SAFETY WHILE PERFORMING THEIR DUTIES

HARDROCK MAINTENANCE

DANDY WEST UPPER SITE

SECTION 8, T9S, R27E
CARBON COUNTY, MONTANA

Date: April 1993
Sheet No 9 of 9

SPECTRUM ENGINEERING
Mining and Civil Engineers
Billings, Montana

SITE PLAN AND GENERAL LAYOUT

DANDY WEST UPPER SITE
SECTIONS 8 & 9, T9S, R27E
CARBON COUNTY, MONTANA

STATE OF MONTANA
DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION

DATE: October 1988
DRAWN BY: OLO
CHECKED BY:
APPROVED BY:

NO	REVISIONS DATE	BY
1	3/21/89	JRJ

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th AVE NORTH
BILLINGS, MONTANA

SHEET NO 1 of 1

AS–BUILT DRAWING AND PHOTO INDEX

ATTACHMENT 5

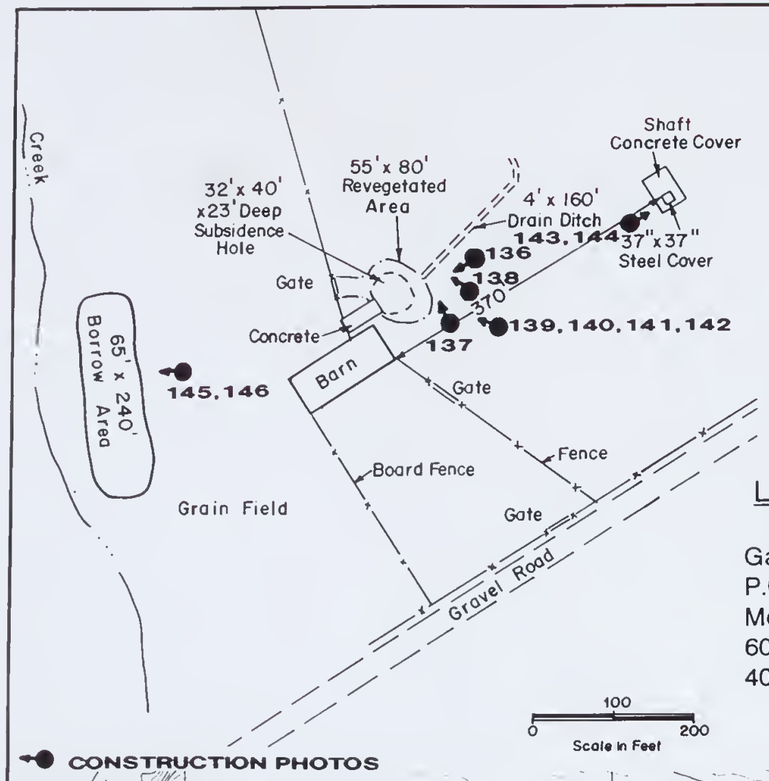
AS-BUILT DRAWINGS

AND

PHOTO LOCATIONS

WORK DESCRIPTION

Backfilled a large 32 foot by 40 foot by 23 foot deep subsidence hole behind a red barn and concrete structure directly off the county road. A total of 1,100 cubic yards of fill required from borrow area 600 feet away (240 foot by 65 foot by 0.5 foot deep borrow area). A total of 289 cy of topsoil was salvaged and replaced in the backfilling operation; Excavated a ditch from the subsidence hole to facilitate water drainage prior to backfilling; Provided a steel shaft cover for the opening in the concrete shaft cap. Shaft cover was painted with galvanized paint and four locks were provided to lock down to the existing latches. Opening is 37 inches by 37 inches; and,
Fertilized, seeded, and mulched the backfilled subsidence hole (0.12 acres). The borrow area was not reclaimed since it was in the middle of a plowed field.



CONSTRUCTION PHOTOS

LANDOWNER

Gayle Evans
P.O. Box 55
Mc Call Creek, MS 39647
601-835-0684 (MS)
406-566-2509 (MT)

SITE PLAN AND GENERAL LAYOUT

LEHIGH SITE

SECTION 21, T15N, R12E
JUDITH BASIN COUNTY, MONTANA

STATE OF MONTANA, DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION
1625 Eleventh Avenue, Helena, Montana 59620

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th Avenue North
Billings, Montana 59101
Phone: 406-259-2412

DATE Dec 1993
DRAWN BY DLO
APPROVED BY WCM
REVISIONS
NO. DATE BY
SHEET NO. 10 OF 10

AS-BUILT DRAWING AND PHOTO INDEX

ATTACHMENT 5

AS-BUILT DRAWINGS

AND

PHOTO LOCATIONS

1993 SOUTHEASTERN MT MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ED R	DATE TAKEN	SUBJECT OR COMMENTS
N		
	09-21-93	Pre-construction view of adit subsidence.
	09-21-93	Pre-construction of adit subsidence.
	09-21-93	Pre-construction of adit opening.
	09-21-93	Excavating opening to facilitate backfilling.
	09-21-93	Hole backfilled, topsoiled and seeded.
	09-21-93	Preparing unvegetated area for seeding.
	09-21-93	Seeding unvegetated area.
	09-21-93	Unvegetated area mulched.
	09-21-93	Unvegetated area mulched.
	09-21-93	Unvegetated area mulched.
CREEK		
	09-20-93	View of erosion channels.
	09-20-93	Close up of channels.
	09-20-93	Pre-construction view of subsidence.
	09-20-93	Pre-construction view of subsidence.

1993 SOUTHEASTERN MT MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ED R	DATE TAKEN	SUBJECT OR COMMENTS
ROCK		
	09-21-93	Preconstruction view of erosion channels.
	09-21-93	Regrading erosion channels.
	09-21-93	Regrading complete.
	09-21-93	Crimping mulch on erosion area.
	09-21-93	Straw bales after placement.
	09-21-93	Staking straw bales in place.
	01-25-93	Pre-construction view of 2 very small subsidence holes.
	09-21-93	Excavating the enlarged subsidence hole.
	09-21-93	Backfilling subsidence hole.
	09-21-93	Crimping mulch over subsidence area.
	09-21-93	Crimping mulch over subsidence area.
NDERSON		
	03-30-93	Pre-construction view of subsidence hole.
	09-22-93	Subsidence hole excavated.
	09-22-93	Applying mulch after backfilling completed.

1993 SOUTHEASTERN MT MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ED R	DATE TAKEN	SUBJECT OR COMMENTS
ROCK		
	09-21-93	Preconstruction view of erosion channels.
	09-21-93	Regrading erosion channels.
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	09-21-93	Crimping mulch on erosion area.
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	09-21-93	Backfilling subsidence hole.
	09-21-93	Crimping mulch over subsidence area.
	09-21-93	Crimping mulch over subsidence area.
NDERSON		
	03-30-93	Pre-construction view of subsidence hole.
	09-22-93	Subsidence hole excavated.
	09-22-93	Applying mulch after backfilling completed.

1993 SOUTHEASTERN MT MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ED / R	DATE TAKEN	SUBJECT OR COMMENTS
(CONT.)		
	09-30-93	Pre-construction looking south at Coal Slack Pile #1.
	10-15-93	Liming Coal Slack Pile #1.
	10-15-93	Revegetating Coal Slack Pile #1.
	10-15-93	Revegetating Coal Slack Pile #1.
	09-30-93	Pre-construction looking southeast at Coal Slack Pile #2.
	10-01-93	Roadway with #2 pile to the left.
	10-01-93	View of #2 Slack Pile after slack removal.
	10-15-93	View of #2 Slack Pile with topsoil in place.
	10-04-93	View of #2 Slack Pile ready for lime.
	10-26-93	View of #2 Slack Pile after mulching.
	10-26-93	View of #2 Slack Pile being crimped.
	09-30-93	Pre-construction looking west at Slack Pile #3.
	09-30-93	Pre-construction view of Slack Pile #4 (135 x 12').
	10-04-93	Stock Pile #3 being contoured with scraper.
	10-05-93	Spreading lime on #3 & #4 Slack Piles.

1993 SOUTHEASTERN MT MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ED / R	DATE TAKEN	SUBJECT OR COMMENTS
(CONT.)		
	10-26-93	Post-construction view of #5 Pile.
	09-30-93	Pre-construction of new Slack Pile #6.
	09-30-93	Pre-construction of new Slack Pile #7.
	10-04-93	Site #6 work in progress looking east.
	10-15-93	#6 Slack Pile with topsoil in place.
	10-15-93	#7 Slack Pile with topsoil in place.
	10-26-93	Finished view of #6 and #7.
	10-25-93	Fertilizer and mulch.
	10-25-93	Mulching.
	10-14-93	Klein road edge ready for fertilizer.
	10-27-93	Roadway finished.
	10-12-93	Road edge topsoil being hauled.
	10-18-93	Roadway edge finished.
	09-30-93	Erosion area upstream (off map) coming down road caused by lack of drainage control when upper coal slack pile revegetated years ago.

1993 SOUTHEASTERN MT MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ED R	DATE TAKEN	SUBJECT OR COMMENTS
(CONT.)		
	10-14-93	Zimmerman Pile #1 work in progress.
	10-14-93	Zimmerman Pile #1 lime spreading.
	10-15-93	Zimmerman Pile #1 seeding.
	10-15-93	Zimmerman Pile #1 mulch applied.
	10-18-93	Zimmerman Pile #1 finished.
	10-06-93	Pre-construction of Zimmerman Pile #2.
	10-15-93	Seeding of Zimmerman Pile #2.
	10-15-93	Zimmerman Pile #2 with mulch applied.
	10-18-93	Zimmerman Pile #2 completed.
	10-06-93	Pre-construction of Zimmerman Pile #3.
	10-15-93	Zimmerman Pile #3 with mulch applied.
	10-06-93	Pre-construction of Zimmerman Pile #4.
	10-15-93	Zimmerman Pile #4 with mulch applied.
	10-18-93	Zimmerman Pile #4 completed.
	10-06-93	Pre-construction of Zimmerman Pile #5.

1993 SOUTHEASTERN MT MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ED R	DATE TAKEN	SUBJECT OR COMMENTS
ROY (CONT.)		
	09-23-93	Revegetation complete.
	09-23-93	Revegetation complete.
Y WEST UPPER		
	01-25-93	Pre-construction of collapsed grate at Dandy West.
	03-30-93	Pre-construction aerial view of grate at Dandy West.
	09-24-93	Removing collapsed grate.
	09-24-93	Removing collapsed grate.
	09-24-93	Open shaft after ½ of grate is removed. The other half fell into the hole and could not be retrieved.
	09-24-93	Backfilling in process into shaft.
	09-27-93	Backfilling side slope.
	09-27-93	Backfill in place.
	09-28-93	Seeding.
	09-28-93	Seeding slope with straw bales in place.
	09-28-93	Seeding side slope.

1993 SOUTHEASTERN MT MAINTENANCE PROJECT
PHOTO DESCRIPTIONS

ED R	DATE TAKEN	SUBJECT OR COMMENTS
H		
	12-13-93	Pre-construction view of subsidence hole.
	12-14-93	Excavation of drain ditch.
	12-16-93	Post-construction view of ditch after vegetation.
	12-14-93	Backfilling subsidence hole with backhoe/loader.
	12-14-93	Hauling fill material with scraper for subsidence hole.
	12-16-93	Crimping mulch on mounded fill over subsidence hole.
	12-16-93	Subsidence hole completed.
	12-13-93	Pre-construction view of missing shaft cover.
	12-16-93	New shaft cover in place with new locks.
	12-14-93	View of stockpiled topsoil and borrow area.
	12-16-93	Borrow area topsoiled and completed.
	12-14-93	Dump truck with tilt trailer and pickup.
	12-14-93	Michigan 110-11 scraper.
	12-14-93	Case 560 backhoe/loader.

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BRYAN SITE
T3S, R46E, SEC. 18
POWDER RIVER COUNTY

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CASE
4


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COAL CREEK SITE
T3S, R45E, SEC. 3
POWDER RIVER COUNTY


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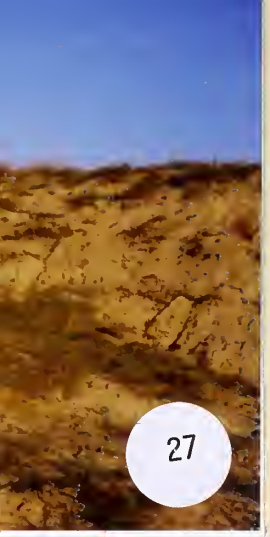
1993 SOUTHEASTERN MT
MAINTENANCE PROJECT
DSL-AMRB 93-M04

Before, during and after construction photographs.
Photo descriptions are found in the final report.
Construction period: 9/20/93-10/26/93

CROW ROCK SITE
T12N, R45E, SEC. 17
CUSTER COUTNY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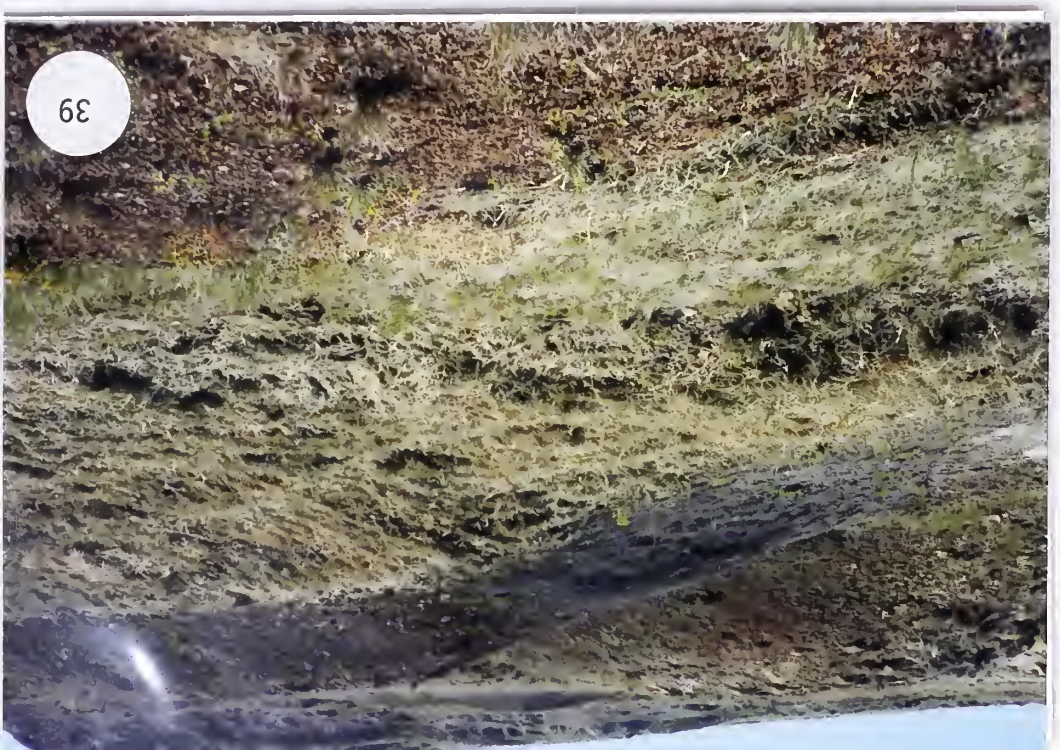
LEO/ANDERSON
T19N, R38E
SEC. 26, NE¼NE¼
GARFIELD COUNTY

HELICOPTER TRIP
MARCH 30/31, 1993
JOEL CHAVEZ/
BILL MAEHL



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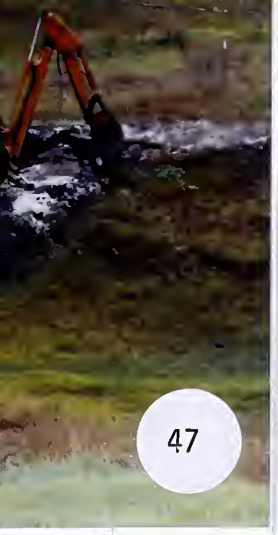

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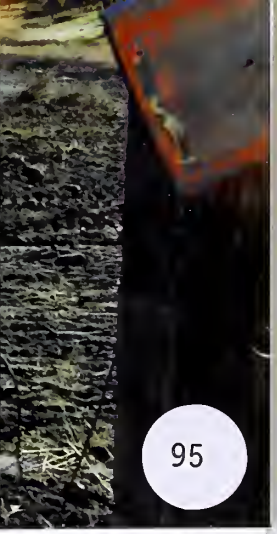
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McELROY SITE
T4S, R22E, SEC. 36
CARBON COUNTY


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SITE
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EQUIPMENT

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LEHIGH SITE
T15N, R12E, SEC. 21
JUDITH BASIN COUNTY


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1993 SOUTHEASTERN MT
MAINTENANCE PROJECT
DSL-AMRB 93-M04

Before, during and after construction photographs of Lehigh. Photo descriptions are found in the final report.
Construction period: 12/14/93-12/16/93

1993 SOUTHEASTERN MT
MAINTENANCE PROJECT
DSL-AMRB 93-M04

Before, during and after construction photographs of Lehigh. Photo descriptions are found in the final report.
Construction period: 12/14/93-12/16/93

1993 SOUTHEASTERN MT
MAINTENANCE PROJECT
DSL-AMRB 93-M04

Before, during and after construction photographs of Lehigh. Photo descriptions are found in the final report.
Construction period: 12/14/93-12/16/93